KNK Zing with Make-The-Cut[1]

April 20, 2012

Features of this Online User Manual

✓ Turning Pages and Zooming

Click along the outside margins of the manual to turn a page. To activate the zoom, double click anywhere on the page. Then move your mouse to pan up or down the page.

✓ Videos

This user manual contains numerous links to videos, such as the one just above which presents an overview of the Zing cutter. Click on these green Video icons to open either a You Tube or Vimeo hosted video and learn the topic in that particular section of the manual. Past experience has shown that watching videos can be extremely beneficial when learning software and cutting applications.

✓ Bookmarks

Click on the **Bookmarks** icon to list the major chapters of the manual and then click on a chapter to immediately go to the first page of that chapter. You can also enter a page number at the top in order to go to that specific page.

✓ Searching

You can search by any word at all. Click on the **Search** icon, enter any word, and all pages with that word will be listed. Select any page and the word will be highlighted in yellow.

✓ Downloading

You may download this manual, if you wish, in either PDF format or as an application that will continue to work in the same way that it does online. But again, this is a manual that will be updated, as needed.

✓ Printing

Do NOT print this entire manual!!! It will be changing as enhancements are made to Make-The-Cut or new applications are added for using your Zing. Thus it's better to print only those pages you might need for a certain topic, at a specific moment. And you may never need to print any of it at all.

Where to Start

- Thank you for choosing a KNK Zing. Before using a blade in your new cutter, we suggest you read the Quick Start Guide that came in your Zing box plus *Chapters 1 and 2.*
- If you run into difficulties with the operation of the Zing, turn off the power and look for a solution in this manual. If you continue to have technical questions or issues, please contact your KNK Zing supplier as soon as possible.
- For additional support, please visit our Yahoo group at: http://groups.yahoo.com/group/KNK_Zing/

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1. Unpacking, Installing, and Assembling

1.01 Unpacking

Video

- Verify that you have received all contents. There is a checklist below. Please notify your KNK Zing supplier immediately if anything is missing.
- Remove all foam pieces and other packaging before turning on the KNK Zing. Currently there are two end cap foam protectors and 3 internal smaller foam pieces.
- Use the enclosed test pen as you experiment and become familiar with operating the KNK Zing. Place scrap paper on the mat and simply draw shapes rather than cut them. This will prevent possible damage to the blade, mat, and cutting strip as you learn where shapes will cut and the basic operating procedures.
- Do not unplug the USB cable from your computer or from the KNK unless you first turn off the power.
- Always turn off the Zing when not in use. Leaving the cutter turned on for extended periods of time can possibly damage the machine.

1.02 Contents

Video

- Your KNK Zing package comes with the following:

KNK Zing digital die cutter	Blade holder
Quick Start Guide	45° blade (red cap)
Make-The-Cut! CD with activation pin	60° blade (blue cap)
Cutting Mat	2 small springs for blades
Test Pen	USB cable
2 test pen inserts and a spring	Power cable

1.03 Items to Note (Please Read!)

- Blades: The blades used by cutters are extremely fragile. Do not drop or even bump the blade onto any hard surface as they can chip easily. When not in use, retract the blade into the blade holder or remove and cover the sharp end with the soft plastic cap. Be careful to keep these small blades and their springs in a safe place.
- Warranty: The one year warranty covers Manufacturer's Defect only and does not include normal wear and tear. If warranty work is required, the owner is responsible for shipping costs to and from Accugraphic Sales. If a KNK Zing is damaged during shipment, then your dealer should be notified as soon as possible. If damages are reported later than three weeks after delivery, then it will be the responsibility of the owner to ship the damaged KNK back to Accugraphic for repair.
- Zing owners outside the USA should contact their distributor for procedures regarding warranty work or shipping damage.
- Transporting: When transporting the cutter, move the pinch wheel levers into the upward position. Remove the accessories from the Zing and place in a separate bag. We also recommend retaining the original boxes with the foam inserts in case you ever need to ship your KNK Zing.
- Additionally:
  - ◊ DO NOT touch or jam the plotter's track while it is operating. If the cutter is damaged, it is the owner's responsibility.

◊ DO NOT shake the cutter while it is operating.

◊ DO NOT cut any materials that have staples or other embellishments attached.

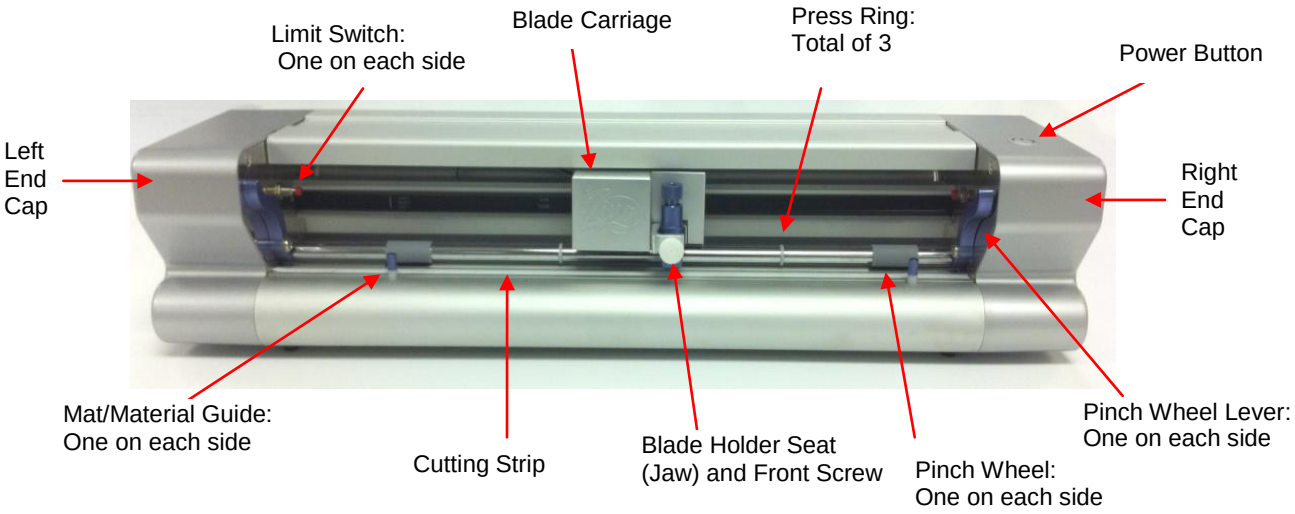
◊ DO NOT touch the cutter with a magnet.

◊ DO NOT allow small items to fall into the cutter.

◊ TURN OFF the cutter when not in use.

1.04 Parts of the Zing

Front



- Blade Carriage: Moves the Blade Holder Seat left and right
- Blade Holder Seat (Jaw): Holds the blade holder, test pen, and other tools
- Cutting Strip: Protects blade from cutting metal beneath
- Front Screw: Locks blade holder, test pen, and other tools into blade holder seat
- Limit Switches: Provide a buffer between blade carriage and end cap
- Mat/Material Guides: Keeps cutting mat aligned during cutting
- Pinch Wheels: Grip mat or material so that grit shaft (beneath) will feed mat or material in and out
- Pinch Wheel Levers: Lift pinch wheels up and down for loading of mat or material
- Power Button: Turns cutter on or off
- Press Rings: Help keep material from lifting during cutting

Back

1.05 Accessories

Test Pen Holder

Video

- The test pen should be used until you are comfortable with the operation of the KNK Zing and know, with certainty, where shapes will cut. To assemble the test pen, remove the top cap, slip the spring over the top half of the pen insert and then drop the pen insert into the bottom half of the pen holder. Slide the cap over the pen insert, allowing the pen insert to fit through the hole at the top of the cap. Screw into place.

Blades Included With KNK Zing Purchase

- There are two kinds of blades included with the KNK Zing. The 45° red capped blade is suited for cutting thinner materials such as paper and vinyl. The 60° blue capped blade is a much longer blade and is well-suited for cutting thicker materials, such as craft foam, chipboard, and rhinestone template material.
- Additionally, there are other tools sold separately, including a fabric blade, engraving tool, embossing/scoring tool, and pen holder. Details on these are covered in *Chapter 10* and in the following video:

Video

Blade Installation

Video

- The blade must be carefully inserted into the blade holder. Do this over a soft surface (e.g. over a hand towel). It's important to protect the fragile blade!
- The little springs that come with the blades are easy to lose, which is another reason to do this over a towel so that a dropped spring doesn't roll off the table. Remove the colored cap from the blade and slide the spring over the sharp end of the blade:

Spring is placed over the blade

- There are different ways to install the blade. This is the method I prefer, but experiment with other methods if you like. Again, the important thing is to just take it easy!
  - ◊ Tighten the main part of the blade holder by turning it clockwise until it is about half-way closed:

◊ Place the blade into the tiny hole in the main part of the blade holder:

◊ Gently guide the cap over the top of the blade and then begin screwing the cap on. You may need to wiggle the cap slightly for the cap to catch the threads and screw onto the main part of the blade holder:

◊ Screw the cap tight. Then, as you screw the main part of the blade holder (the top), the blade will begin to show through the hole in the cap. You only need as much blade exposed as is necessary to penetrate the material you are cutting. More blade does NOT result in better cutting. In fact the opposite is true.

Turn clockwise to expose more blade. Turn counterclockwise to retract the blade. The blade depth you want should be ~ the thickness of the material you are cutting.

- Please read Chapter 2 before cutting. There are some tips on setting the blade exposure as well as other important information you need to know to be successful with your cutting.

Mat (Carrier Sheet)

- Always use the mat to hold the material to be cut unless the material has its own protective backing. For example, paper, fabric, and gum paste require a carrier sheet, whereas wall vinyl and iron-on transfer do not. Also, any materials that are less than 11" wide will need to be placed on a mat so that the pinch wheels can properly feed the material.

- When placing the material you plan to cut onto the mat, you can locate the material anywhere it is sticky.
- When mats begin to lose their stickiness, they can be washed. Use a mild dishwashing detergent, warm water, and a brush to thoroughly clean the surface. Then allow to thoroughly dry. Normally, the mat will regain its original stickiness. But if not, apply a repositionable adhesive as necessary. **IMPORTANT**: Do not spray adhesives around your KNK! Not only can the adhesive get stuck to important parts of your Zing, but these adhesives should only be used in well-ventilated areas. Breathing in the adhesive can be damaging to your health!
- If the newly-sprayed mat is too sticky, causing difficulty in removing cut items without tearing, place an old but clean dish towel, fuzzy side down, over the surface of the mat and press with a brayer or rolling pin.

Then pull up. Test the stickiness and repeat until the mat is more appropriate for your material. It should only take a few pressings to greatly reduce the stickiness, as micro-sized fibers are pressed to the surface.

- If you have cut items or scraps that you cannot easily remove from the mat, then use Un-Du or even acetone (nail polish remover) to temporarily wet the material and disarm the adhesive. Avoid scraping the mat while it is wet and allow to air dry.
- If you need to strip your mat of the adhesive, use Goo Gone or Duck Adhesive Remover. Wet the entire surface of the mat with the remover and allow to sit for about 30 seconds. Then use a metal or firm plastic scraper to scrape off the adhesive until the surface is clean.

1.06 Installation of Make The Cut (MTC) Software, Zing Driver, and the Zing Plug-in

- Go to the following link and register Make-The-Cut (MTC), using the Activation Pin provided with your new Zing. If you already have a registered version of MTC installed on your computer(s), you may skip this step and the next step. Your new Activation Pin is yours to sell, give away, or keep.

https://www.make-the-cut.com/Register.aspx

- At this link, carefully enter the Activation Pin and your email address. After registering, a registration number will appear on the screen and be sent to the email address you provide. This is what you use for registering inside the software. You can install MTC on all of your computers and use that same registration number you received by email. We do request that you only use MTC on one computer at a time.
- Close all programs not needed and insert the MTC CD into a CD Rom on your computer. Even if you already have MTC installed, you will want to reinstall in order to add the Zing plug-in and the Zing driver to your computer.
- Once your computer has loaded the CD, use Windows Explorer or My Computer to locate the installation file on the CD. Double click the file to launch the installation of MTC, the Zing driver, and the Zing plug-in.
- After you have successfully installed the software, an MTC icon should be present on your desktop.
- If you do not have a registered version of MTC on your computer, then you will only be able to save one file per session, plus your cuts will include a "watermark" cut consisting of a large "X" through your cut. If you decide to register at a later time, go to **Help>Register.**
- It's important to be running the latest software updates. When you open MTC, go to Help>About Make The Cut. If you are running a version earlier than 4.10, then please visit this site to download and install the latest. Note that you will also want to download and install the latest Klic-N-Zing plug-in (scroll down on the same page):

http://www.make-the-cut.com/Download.aspx

- Place the KNK Zing on a sturdy horizontal surface. Connect the power cord to the back of the cutter and plug into a wall outlet or power strip. Turn on the power using the power switch on the top.
- Connect the USB cable to the back of the cutter and into an available USB port on your computer. We do not recommend the use of a USB hub. However, if you have no other option, then the hub must be the type which is separately powered.
- Once the USB cable is connected, the hardware manager will identify the USB connection. If the Windows **Hardware Installation** window pops open, proceed and accept all defaults.

1.07 Pinch Wheel Levers

- There are two pinch wheel levers, one on each side, just inside the end caps. These are used to raise and lower the pinch wheels.
- Press down on the levers. The roller bar and pinch wheels will be raised. Note that both wheels do not need to be raised at the same time, but you do need to have both raised before inserting the cutting mat or your backed materials.

- After you insert the cutting mat or materials, flip the levers up to lower the pinch wheels onto the mat or material.

1.08 Mat/Material Guides

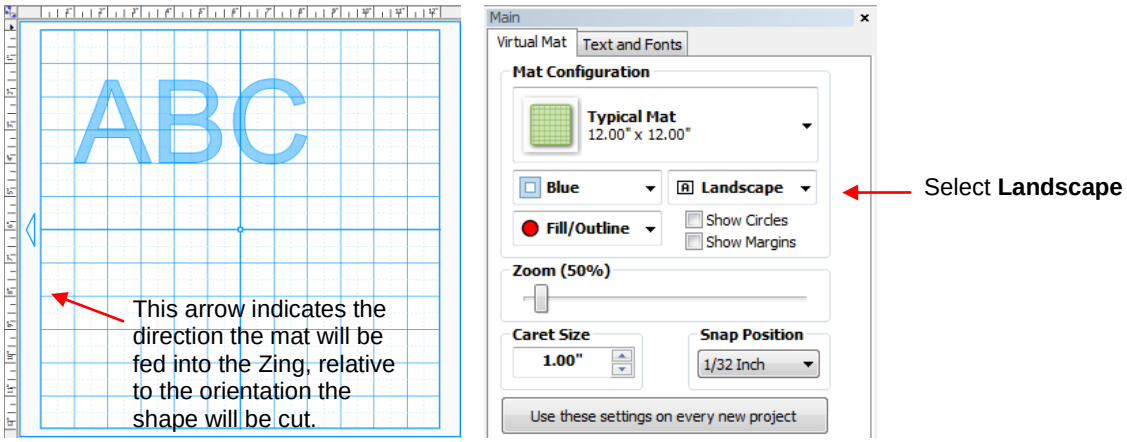
- There are two mat/material guides at the front of the cutter (refer to the parts diagram in *Section 1.04*). At the time of this writing, both guides are moved to the far right when the Zings are packed. Those guides should be repositioned with one on each side of the mat or backed material. When you unscrew a guide counter-clockwise, it will then freely slide left or right.
- If the blade carriage is preventing easy access to the guides, then turn off the Zing. Now you can manually slide the blade carriage to the left so that you can more comfortably access these guides.
- While the guides can be positioned anywhere, note that when you first turn on the Zing and the blade carriage comes to its home origin, that position marks the beginning of the 14" cutting range. Thus, you do not want to position your two guides too far to the left or you risk not having the full range of cutting you might need.
- Thus, move the left guide to the left side but leave loose. Now position the right where you want it, turn clockwise to lock into place.
- Now insert the cutting mat or the backed material you are cutting and move the left guide to just touch the mat or material. Then turn clockwise to lock it into place. Note that once you have the guides in place, you do not need to readjust them unless you insert a different sized cutting mat or cut from a backed material with a different width.

1.09 Test Drawing Shapes

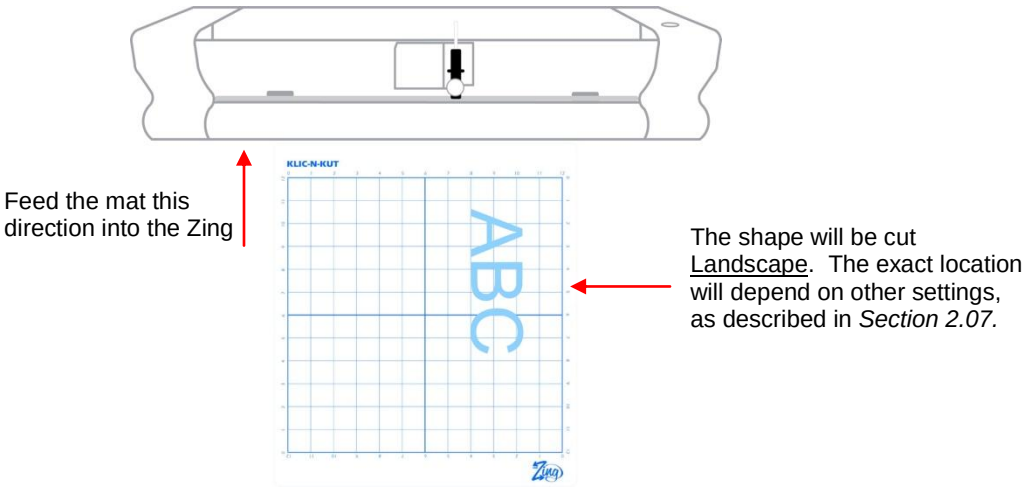
Landscape Versus Portrait: Which do you prefer?

- Based on your own past experience with MTC or other cutting programs and cutters, you may have a particular mode (landscape or portrait) that you are accustomed to using. There is no right or wrong mode, only the mode that works best for you… or your brain, as the case may be!
- Some people find it easier to work in one versus the other when visualizing where shapes will cut. For that reason, tutorials in this user manual will be presented in both modes so that you can use whichever one seems easier.
- In MTC, the orientation is set on the **Virtual Mat** tab on the **Main Bar**. The settings on this tab are presented in detail in *Section 3.04*. For now, just note the location of the **Mat Configuration** settings for **Landscape** and **Portrait**:

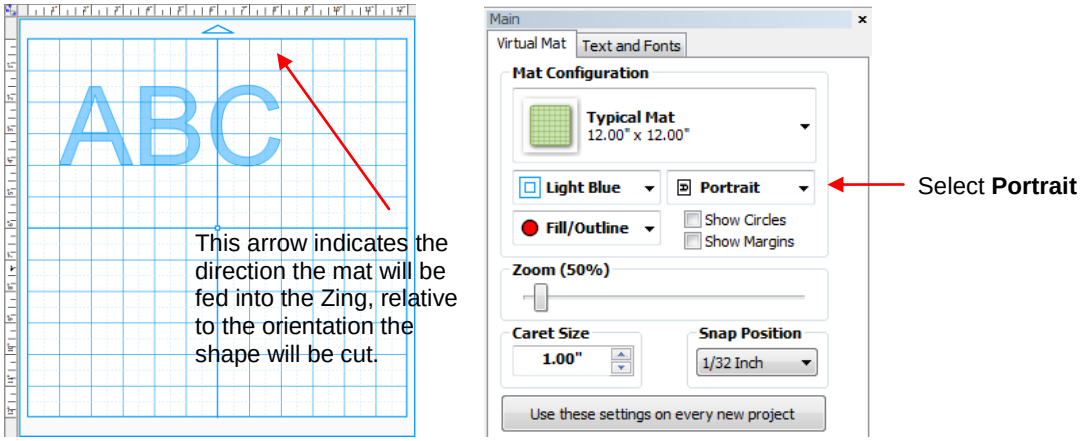
  ◊ Landscape Mode



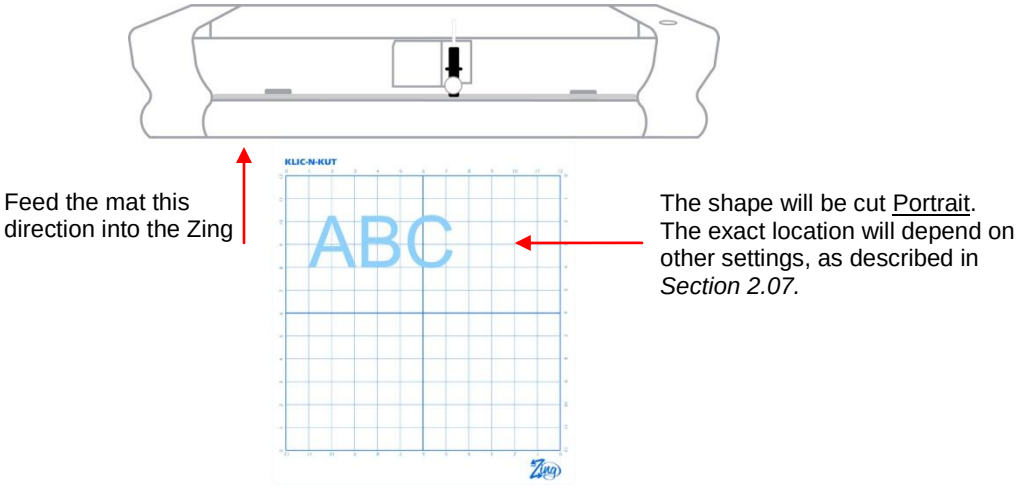
- In **Landscape** mode, the arrow on the virtual mat will point to the left. When you draw or cut out the "ABC" shown on the **Landscape Virtual Mat**, it will be drawn or cut <u>top to bottom</u> as you face the Zing:


Feed the mat this direction into the Zing
KLIC-N-KUT
ABC
The shape will be cut Landscape. The exact location will depend on other settings, as described in *Section 2.07.*

◊ <u>Portrait Mode</u>



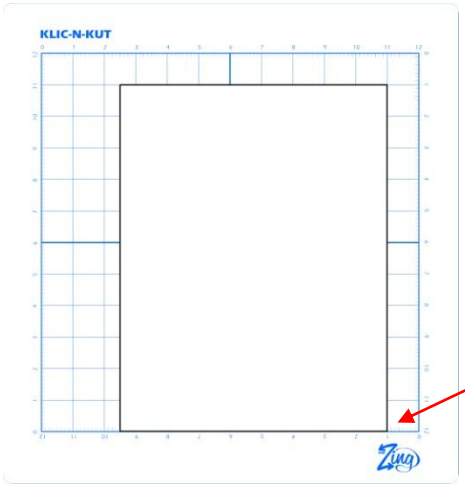
- In **Portrait** mode, the arrow on the virtual mat will point upwards. When you draw or cut out the "ABC" shown on the **Portrait Virtual Mat**, it will be drawn or cut <u>left to right</u> as you face the Zing:


Feed the mat this direction into the Zing
KLIC-N-KUT
ABC
The shape will be cut Portrait. The exact location will depend on other settings, as described in *Section 2.07.*

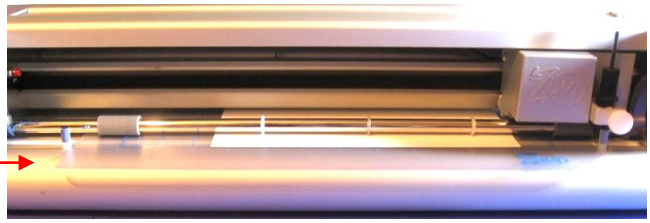
Drawing Your First Shape

- New owners tend to be eager to try out their cutters. It's also important to test your cutter to insure that data is being sent properly from your computer to the machine and everything is operating correctly. The following steps will allow you to do some testing with the test pen. But note that **the following steps are for drawing, not cutting**. Before inserting the blade holder into the KNK Zing, please read *Section 2.01.*
- This first test will show you how the **Knife Point** mode works. This is a very useful setting because it is easy to know where your shapes will cut on your material, plus it economizes the use of your materials. Instead of cutting shapes where they are located on the **Virtual Mat**, the shapes will be moved and cut where you set the origin on the material, using the blade tip (not the laser light).

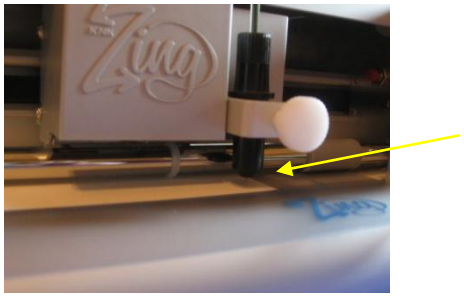
1. Place an 8.5" x 11" sheet of paper on the mat, using any of the grid lines. Place the paper onto the mat like this:



2. Insert the mat into the cutter, with the mat snug between the material guides. Slide the mat towards the back and use any of the horizontal markings at the front of the Zing to align the mat. Then lift the pinch levers to drop the pinch wheels onto the cutting mat. Most of the mat and the paper should now be behind the cutter, not in the front:

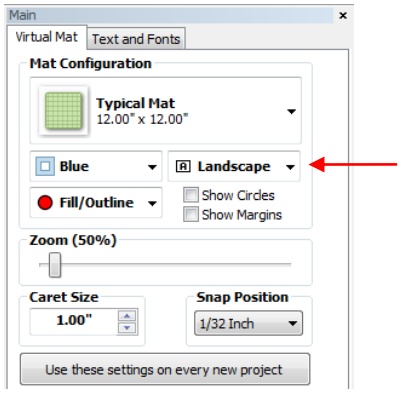


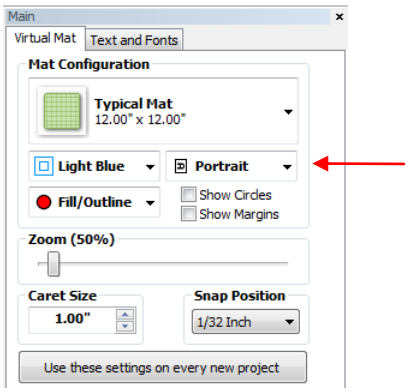
3. Before installing the test pen, make sure the pen will write by scribbling on scrap paper. Then loosen the front screw on the blade holder seat and insert the pen tool. Make sure the pen nib is slightly above the cutting surface so that it will not drag across the paper. Firmly tighten the screw. (Note: with the Zing turned off, you can manually slide the blade carriage to the left so that you can check pen or blade tip height, as necessary).



4. Select either **Landscape** or **Portrait**, on the **Virtual Mat** tab, depending on your personal preference (as described at the beginning of this section):

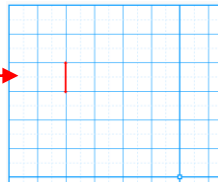
Select your preferred mode: **Landscape** or **Portrait**





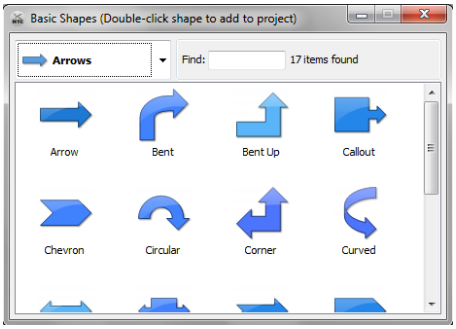
5. Before adding a shape to draw, double click in the gridded area on the screen to plant the **Caret**. This will determine where the shape will be imported:

Double click to plant the **Caret** (the vertical red line) onto the virtual mat.

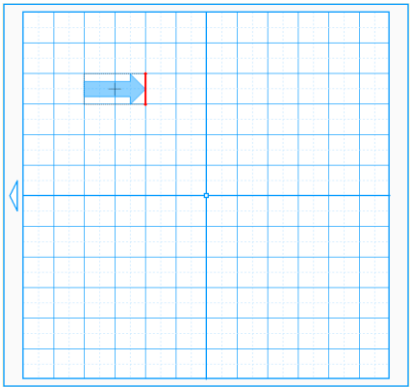


6. Go to **File>Import>From Basic Shapes** and select the category called **Arrows**. Double click on any of the arrow shapes to add that shape to your screen. An arrow will help you better compare where a shape gets drawn versus how you see it on the screen.

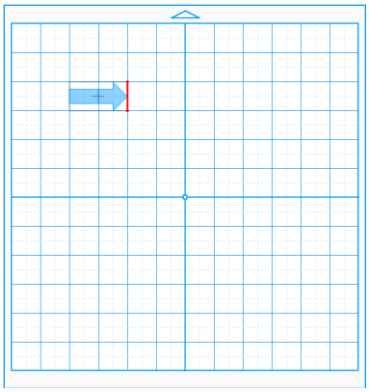
Double click any of the arrow shapes to add to your screen.



7. Now you will have an arrow on your virtual mat that looks like this:



Landscape Virtual Mat



Portrait Virtual Mat

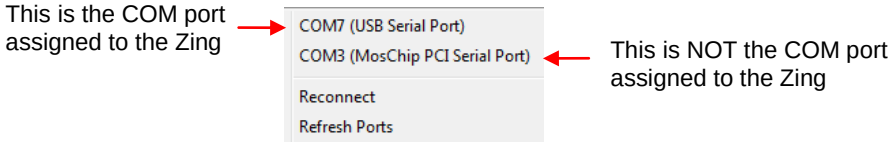
8. To open the cutting control window, go to **Cut Project With…>Klic-N-Kut Zing**. A new window will open. This window is covered, in detail, in *Sections 2.02-2.08.* But for the purposes of this quick tutorial, make the following changes to the **Speed**, **Force** and **Blade Offset** settings. To change a setting, hold the left mouse button and drag the dial up or down with your mouse or click on the dial once and then use the arrow keys on your keyboard to adjust the setting:

9. If, instead of seeing "**Connected (COM X)",** you see "**Not Connected**", then your computer is not identifying the Zing. Do the following:

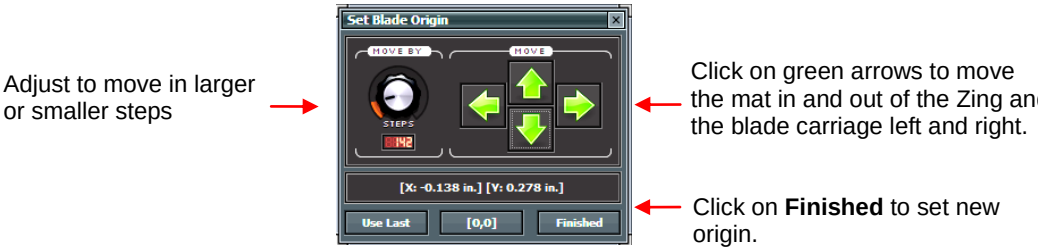
   ◊ Turn off your Zing. Unplug and reconnect the USB cable at both the Zing and the computer to make sure the cable is firmly plugged in.

   ◊ Turn the Zing back on.

   ◊ Click on the **Not Connected** button, select **Connection (),** and select **Refresh Ports**. Repeat by going back to this window and then select the connection that says **COMX (USB Serial Port).** If there is no option that says **USB Serial Port** (as shown below), then refer to *Appendix B – Communication Issues.*

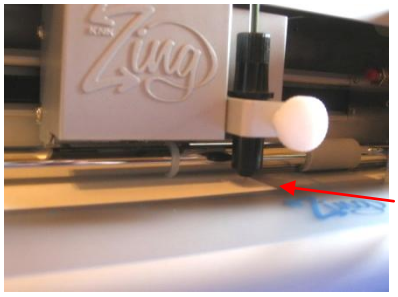

This is the COM port assigned to the Zing
COM7 (USB Serial Port)
COM3 (MosChip PCI Serial Port)
Reconnect
Refresh Ports
This is NOT the COM port assigned to the Zing

10. Next, set the origin by clicking on the **Set Blade Origin** button. The following window will open:

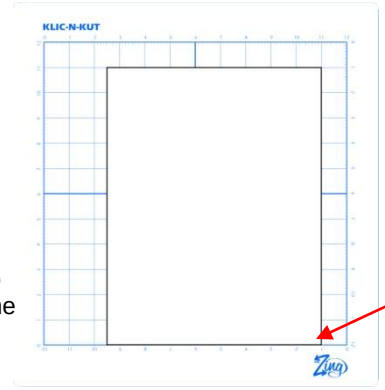

Set Blade Origin
MOVE BY
STEPS
MOVE
[X: -0.138 in.] [Y: 0.278 in.]
Use Last
[0,0]
Finished
Adjust to move in larger or smaller steps
Click on green arrows to move the mat in and out of the Zing and the blade carriage left and right.
Click on Finished to set new origin.

IMPORTANT: In **Knife Point** mode, you will use the tip of the pen (or tip of the blade) to set the origin, not the laser light (which is used in the **WYSIWYG** or **Print and Cut** modes.

11. Click on the arrow keys to move the pen to the bottom right corner of the paper. You do not have to be exactly on the corner. In fact, set the pen tip just a little ways in. Then click on **Finished** to set this new origin and close the **Set Blade Origin** window. More details about this window are presented in *Section 2.08*:



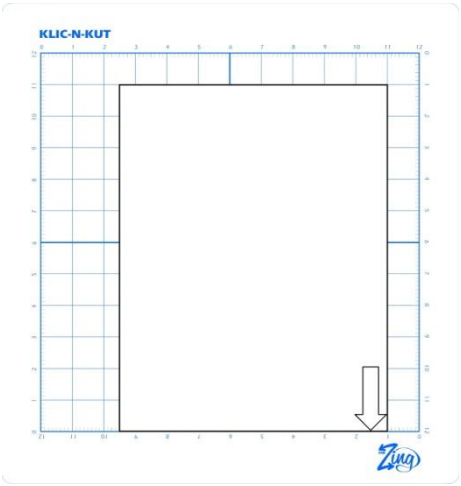
Move pen tip to this corner of the paper.



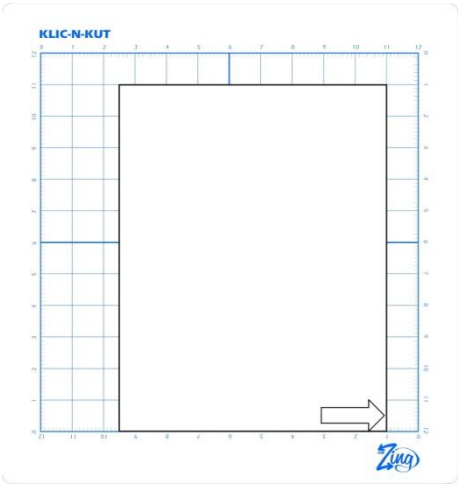
Feed the mat this direction into the Zing

Move the pen tip to this corner of the paper.

12. Click on **Cut Project** and <u>your arrow shape will be drawn at the new origin you set</u>. After the cut is complete, the cut window will close. Your arrow will be drawn as shown, with the direction related to whether you originally chose **Landscape** or **Portrait** for your virtual mat:



<u>Landscape Virtual Mat</u>:
The arrow will be pointing downwards.



<u>Portrait Virtual Mat:</u>
The arrow will be pointing to the right.

13. To draw again, return to the cut window and choose a different origin. Practice moving the origin to different locations. This is how **Knife Point** mode works. If you want the image to draw where you have it on the **Virtual Mat**, then you need to switch to **WYSIWYG** mode and use the laser to set the origin versus the tip of the pen. Refer to *Section 2.07* for more details on controlling where images will cut.

IMPORTANT: Please read Section 2.01 before cutting!

2. Cutting

2.01 What You Need to Understand About Cutting

You Have To Make Mistakes

- The key to becoming successful at cutting is to do a lot of it! Those who shy away from using their Zing will never get to the stage of mastering it. It's very normal for new owners to be intimidated by their cutter, so remember the following key things:
  - ◊ You won't break your new ZING by cutting paper, vinyl, cardstock, rhinestone rubber, and other easy-to-cut materials. The worst thing that might *possibly* happen is that you'll break a blade. That's it! And the likelihood of even that happening is low.
  - ◊ You need to start cutting so that you'll make a lot of mistakes! We ALL do that. It's in making these mistakes that you start to learn. You realize that those mistakes didn't result in a broken cutter. Plus you'll stop making the same mistakes as you remember more of the things you need to check before every cut.
  - ◊ As you make fewer mistakes you begin to build confidence and you begin to have more cutting success! From there, you begin to experiment more and produce more. Thus, your best course of action is to just start cutting… a lot! But first, read the rest of this section.

The Most Common Mistakes Made by New Owners

- We all make them and we all learn from them. So, please note the following most common mistakes and then finish reading this entire Section 2.01 as the details behind these listed mistakes will be explained:
  - ◊ Too much blade is exposed on the blade holder
  - ◊ The blade tip is too close to the material
  - ◊ Too much force is being used for the material being cut
  - ◊ Forget to set the Blade Offset before cutting
  - ◊ Failure to do a test cut to make sure settings are optimal
  - ◊ Not practicing enough with the test pen and paper to know where shapes will cut

Begin with Easy Materials and Easy Shapes

- You didn't begin your first driving lesson on the freeway. You probably started driving on a farm or in a parking lot. Then you progressed to the neighborhood and other low-traffic streets. Then you began driving on major streets and, finally, the freeway. Think of your cutting in the same way and don't start your first cuts with thick difficult materials or detailed cutting files! Instead, start cutting basic shapes from inexpensive materials or just scraps you have on hand. Work your way up to more difficult cuts after you master the easy ones.

Record Your Successes

- As you have successful cuts, take note of the settings you just used, such as cutting force, speed, blade type, number of passes, brand of material, etc. There is a blank form at the end of this chapter that you can print and use to record your results. There are also suggested settings for common materials at the end of this chapter. Use these as starting guides but remember that your results may vary based on the many factors which can affect cutting.

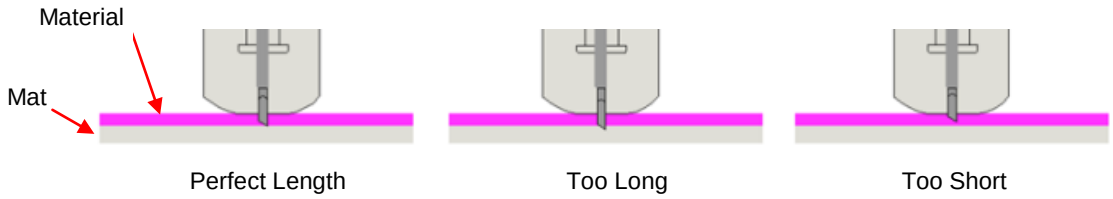
Use the Correct Blade for the Material You Are Cutting

- The Zing comes with a 45° blade (red cap) and a 60° blade (blue cap). An optional fabric blade (yellow cap) is also sold. Use the following as a guide for choosing the appropriate blade for the material you are cutting:
  - ◊ The 45° blade (red cap) should be used to cut vinyl, paper, most cardstock, Dura-lar, iron-on transfer, and vellum.
  - ◊ The 60° blade (blue cap) should be used to cut chipboard, Grungeboard, stiffened felt, craft foam, rhinestone rubber, craft plastic, self-adhesive magnet, and Shrinky Dink.
  - ◊ The fabric blade (yellow cap) should be used to cut all fabrics and unstiffened felt. It is also recommended by PhotoFrost for cutting their icing sheets.
- Additional recommendations are in the suggested settings table at the end of this chapter.

Set the Blade Length To Match the Material Thickness

Video

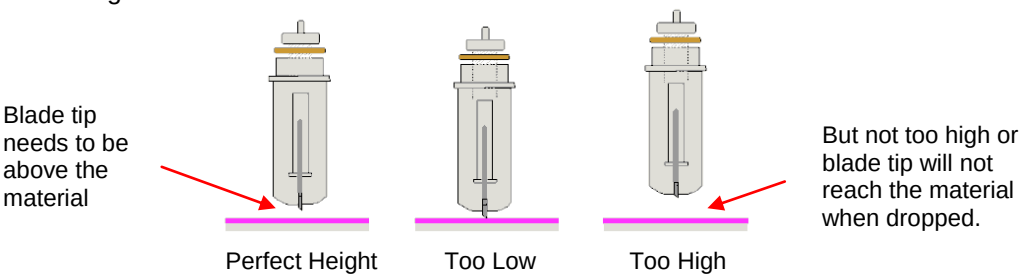
- The **blade length** is how much blade is exposed at the bottom of the blade holder. You want the blade length to match the thickness of the material for optimal cutting. It is controlled by rotating the top of the blade holder. Rotating clockwise extends the blade (longer blade length). Rotating counter-clockwise retracts the blade (shorter blade length).
- When setting the blade length, hold the blade holder up next to the material before pressing the material to the mat, so that you can more accurately set the length to match the thickness of the material. For really thin materials, like vinyl and thin paper, just the very tip of the blade will be protruding from the bottom of the blade holder. In fact, you should just barely be able to feel it with your fingertip and not be able to see it very well, if at all.
- A good way to test your blade length is to fold a piece of the material onto itself and then cut a line into the material by hand, as shown in the video linked in this section. Press firmly but not too hard, as more force will not determine if the blade is set to the right length. If the blade cannot cut through the material, you will need to extend the blade. If the blade cuts through the material and cuts into the next layer, you need to retract the blade. If the blade cuts through the material but does not cut into the layer below, you have the perfect length.
- Having the blade fully extended will never result in better cutting. In fact, it can cause skewing, tearing of the material, damage to the blade, and damage to the mat.
- When conducting the test cut, be sure to check your mat for cut lines after the test. You should be able to set the length to get clean cuts but with no visible cuts into the mat. If you do see cut lines in your mat, retract the blade length by turning the top of the blade holder ~¼ of a turn counterclockwise. You do not need to remove the blade holder from the Zing. Repeat your test cut.



Set the Blade Height Above the Material

- The **blade height** is the distance from the tip of the blade to the top of the material you are about to cut. When you insert the blade holder into the blade holder seat, it does not necessarily have to be positioned with the outer rim touching the blade holder seat. You have control over that height and can raise the blade holder up a little higher before locking it into place with the white screw on the blade holder seat.

- When cutting most materials using the Zing blade holder, setting the perfect height for many thin materials is not a concern. Put the blade holder into the Zing and rest the outer ridge of the blade holder on the rim of the blade holder seat. Tighten the screw. This will provide a good height for cutting paper and vinyl.
- It is only in the cutting of thicker materials, such as cardstock, chipboard, craft foam, craft plastic, stiffened felt, etc, that the blade tip height will need to be set higher. There are two reasons for doing this:
  - ◊ You do not want the blade tip to be dragging across the material when moving to the point to begin the cut.
  - ◊ The dropping of the blade will invoke more downward force. This can make a big difference when cutting thicker denser materials, such as chipboard and craft plastic, which need the blade tip a little higher, but not too high:


Blade tip needs to be above the material
But not too high or blade tip will not reach the material when dropped.
Perfect Height
Too Low
Too High

- One recommended method for getting the same height set for all of your cuts is to use three old credit cards. Set the three cards in a stack on top of the material you plan to cut. With the Zing turned off you can move the blade carriage to the left until it is over the cards. Loosen the front screw and insert the blade holder so that the tip of the blade is touching the top card. Now tighten the front screw and remove the cards. This distance will provide the blade some "punch room" to give the extra force and more consistent cutting of your material. You can also use a stack of 25 Post-It note sheets or even a stack of 12 squares cut from Georgia Pacific 100# cardstock. Label these and keep next to your Zing!

Adjust the Speed, Force, and Number of Passes Based on the Material and Shapes

- Using correct cut settings is equally important as the type of blade, blade length, and blade height. Refer to *Sections 2.03 - 2.05* for details. Again, some suggested settings are located at the end of this chapter and settings for using the various Zing accessory tools are located at the end of *Chapter 10.*

Perform Test Cuts!

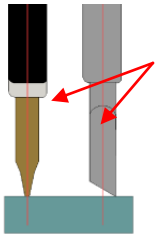
- Use the test function in MTC to make test cuts. Do not proceed with your cut until the test cut is clean. When cutting intricate shapes, a test cut of an intricate image, such as a letter or a small portion of your rhinestone pattern, might be a better indicator of correct settings. Refer to *Section 2.09.*

Know Where Your Images Will Cut

- Practice with the test pen until you know, with 100% confidence, where your images will be drawn. This is important since you do not want to be guessing when you begin actually cutting with a blade. Refer to *Section 2.07* for details and videos on the options for controlling the locations of your cuts.

Adjust Blade Offset If Needed

- What is the blade offset? It is the horizontal distance from the center of the blade shaft to the tip of the blade. A pen or engraving tool has an offset of 0 because the tip is centered with the center of the pen/engraving tool shaft. But a blade is different:



Imagine a line passing through the center of the test pen or blade

There is no **Offset** on a pen.

The **Offset** is the distance between the center of the blade holder and the tip of the blade.

- What happens if you set the **Blade Offset** to 0 when cutting? Or what if it's set too high?

Offset is too low: paths do not close

Offset is too low: outer corners are rounded

Offset is too high: Divots will appear around corners

- Refer to *Section 2.06* for setting the **Blade Offset**.

Keep the Cutting Mat Clean and Sticky

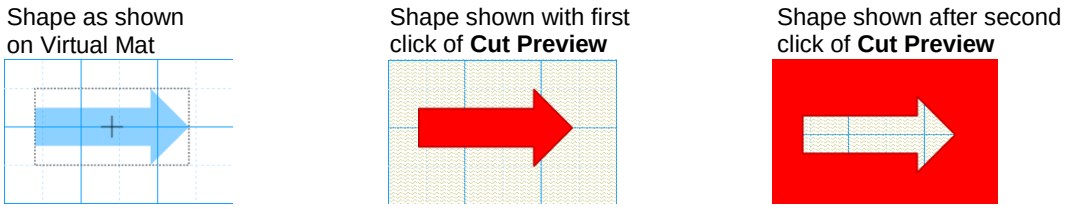
- Press your materials evenly to the mat. Think about using a brayer both before AND after cutting. Repressing the material after cutting can greatly aid in weeding the cut shapes from the waste.
- When necessary, tape thicker materials to the mat to keep them from slipping during the cut.
- If you cut a range of materials, you might need more than one mat so that you can use stickier mats for certain materials.

Don't Get Frustrated, Get Help!

- Besides having your own Zing dealer as your first line of contact, there are user forums, message boards, and Yahoo groups where you can post questions and get answers from other users, dealers, and Make-The-Cut experts. Utilize these resources:
  - ◊ Zing Yahoo Group: http://groups.yahoo.com/group/KNK_Zing/
  - ◊ Klic-N-Kut Yahoo Group: http://groups.yahoo.com/group/Klic-N-Kut/
  - ◊ Make-The-Cut Yahoo Group: http://groups.yahoo.com/group/makethecut/

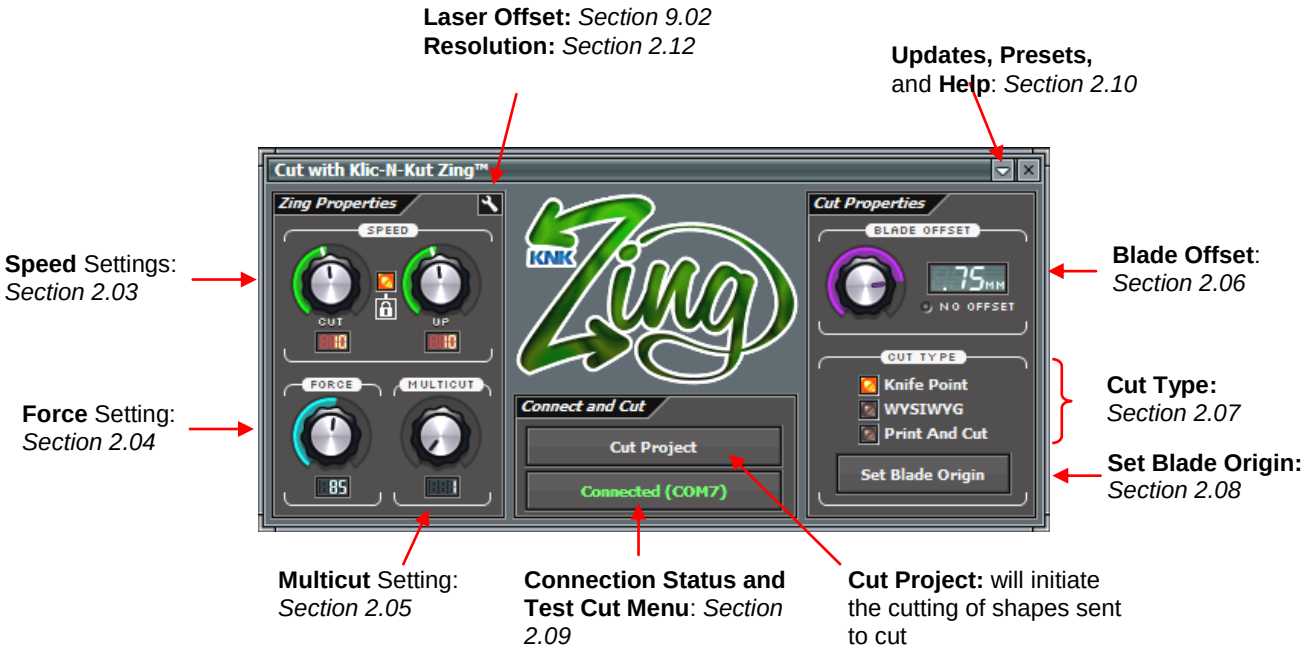
2.02 Cut With Klic-N-Kut Zing

- Before accessing the Zing cutting window, you need to have at least one shape on the current page to cut. If you have no shapes, then attempting to access the cutting window will result in a popup message stating, "There is nothing inside the current project to cut!"
- To confirm what will cut, you can access the **Cut Preview** function in the following ways:
  - ◊ Click on the **Cut Preview** icon on the **File Toolbar**
  - ◊ Press **Ctrl+Shift+E**
  - ◊ Go to **Cut Project With…>Cut Preview.**
- The cut preview will display the shapes that will be cut. Immediately invoking the function again will show the "material" with the cut shapes removed. This is also sometimes called the negative:



- The **Cut with Klic-N-Kut Zing** window can be accessed in the following ways:
  - ◊ Click on the **Cut Project With** icon on the **File Toolbar**
  - ◊ Press **Ctrl+Shift+C**
  - ◊ Go to **Cut Project With…>Klic-N-Kut Zing…**

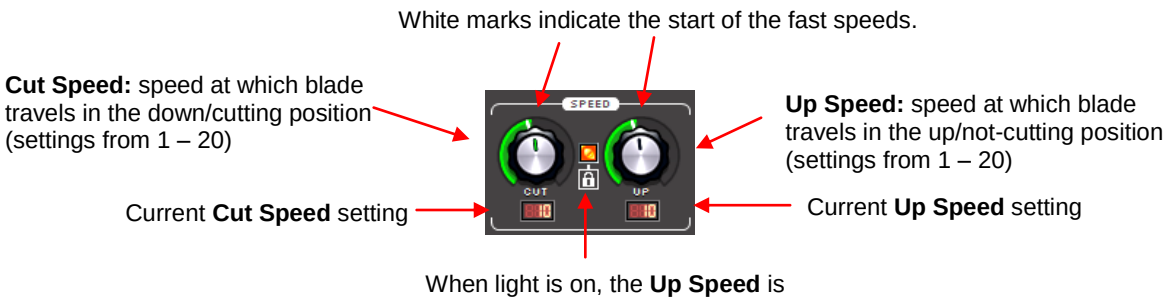
- The following window will open:



- Refer to the Section numbers shown for instructions on each setting. The **Cut Project** button doesn't need its own section as it simply initiates the cut once you have made your other settings.
- To change a setting that has a dial, hold down the left mouse button and move your mouse up to increase the setting or down to decrease the setting. Alternatively, left click on the dial once and then use the up and down arrows on your keyboard to change the setting.
- The movement within the Zing logo can be toggled on and off by left clicking on the logo.

2.03 Speed

- There are two **Speed** settings: **Cut** and **Up**:


White marks indicate the start of the fast speeds.
Cut Speed: speed at which blade travels in the down/cutting position (settings from 1 – 20)
Up Speed: speed at which blade travels in the up/not-cutting position (settings from 1 – 20)
SPEED
CUT
UP
Current **Cut Speed** setting
Current **Up Speed** setting
When light is on, the **Up Speed** is locked to the **Cut Speed.**

- The **Cut Speed** is the speed of the blade (or other installed tool) while it is in the "down" or cutting position. The Zing has 20 speed settings, with 8 of them being below 100mm/sec. This cutter was designed to handle a wide range of thicker, more difficult materials that will cut far more successfully with a slower cut.
    - ◊ The settings from 1 through 9 are the slow speeds and should be used when cutting dense difficult materials, such as chipboard, craft foam, craft plastic, or balsa.
    - ◊ The settings from 10 to 20 are the fast speeds and should be used for easy-to-cut materials, such as cardstock, vinyl, iron-on transfer, rhinestone template material, and fabric, as well as for engraving, embossing, and drawing.
- The **Up Speed** is the speed of the blade (or other installed tool) while it is in the "up" or non-cutting position. It has the same number and range of speeds as the **Cut Speed**. An **Up Speed** is in effect when:
    - ◊ The blade is travelling from the origin to the point where the cutting of a shape begins
    - ◊ The blade raises and moves to the next path or shape to cut
    - ◊ The blade is travelling back to the origin after the cut is completed.
- There is a small white line in the upper left corner of each dial indicating the transition between the slow speeds and the fast speeds. Also, the color of the bar outside the two dials is yellow when in a slow speed range and green when set in a high speed range:

Yellow indicates a slow setting →

Green indicates a fast setting →

- Between the **Cut** and **Up** dials is a light you can click to turn off and on. You'll note that there is a little lock symbol which is a label for the light, reminding you that when the light is on, the **Cut Speed** and the **Up Speed** will match. If you have the two speeds set at different levels, turning the light back on will automatically change the **Up Speed** to the same setting as the **Cut Speed**.
- Why would the **Cut Speed** and **Up Speed** ever need to be different? When cutting extremely dense materials at one of the slowest speeds, you will want to leave the **Up Speed** at a normal level, say 10, so that you aren't waiting unnecessarily for the blade to travel from the origin to the location to begin the cut. If the first shape is across the mat from the origin, the wait can seem endlessly long!

2.04 Force

Force (settings from 1 to 160) →

- The cutting force (also called pressure) greatly affects the quality of the cut. If the force is too low, the material cannot be cut. If the force is too high, you will get bad cutting (even incomplete cutting at times) and tearing of the material. Use recommended starting forces for the material you are cutting and perform test cuts before cutting. Make adjustments in order to get a clean test cut before proceeding with your larger cut.
- The cutting force ranges from 1 to 160 on the force scale. The maximum of 160 represents the 750g of cutting force on a Zing. Refer to *Chapter 10* for recommended starting forces for various materials. Again, remember that a lot of factors can affect the force to use, so use the test cut as a guide and adjust, as needed.
- Dull blades will need more force than new blades, thus anticipate increasing the force over the life of the blade.

- When cutting materials that can use either blade, the 45 degree blade needs more force than the 60 degree blade, because of the extra contact with the material being cut.
- Materials that absorb moisture (such as cardstock, paper, fabric, and chipboard) will need more force (and possibly more than one pass) if they have been exposed to humidity. One tip is to blow dry these materials before cutting.

2.05 Multicut

Set the number of **Multicut** passes to cut each path. (Settings from 1 to 10)

Current **Multicut** setting

- The **Multicut** setting causes each individual path to be cut the set number of passes before the blade moves to the next path to cut. This is better than just repeating the entire cut as each repeated pass is cut with the blade held down throughout the repeated passes, resulting in cleaner cutting.
- **Multicut** is recommended in the following situations:
  - ◊ Cutting thicker denser materials, such as chipboard, where multiple passes allow the blade to progressively “carve” through the material.
  - ◊ Cutting of certain fibrous materials, such as fabric, where a second pass will insure that all of the fibers have been cleanly cut.
  - ◊ Cutting intricate or detailed shapes (such as scripty titles) from certain materials, such as heavily textured cardstock, where a single pass may leave certain spots not cleanly cut.
  - ◊ Cutting rhinestone template material where a second pass results in much cleaner weeding of the cut circles.

2.06 Blade Offset

Adjust the **Blade Offset**, if needed. Range is from 0 to 0.95.

Current **Blade Offset**.

- The default **Blade Offset** of 0.35 should work well for the majority of your cutting with the included 45° red capped blade and a **Blade Offset** of 0.75 for the included blue capped 60° blade. The Zing fabric blade should also use an offset of 0.75. If you use other brands of blade holders, you may need to experiment with the **Blade Offset** setting. In general, an offset of 0.30 is a good starting point for testing. Refer back to *Section 2.01* to note what happens when the setting is too high or too low.
- When drawing with pens or using other tools, such as the engraver and embosser, turn off the **Blade Offset** (set to 0) by clicking on the button beneath the current **Blade Offset** window:

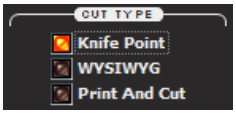
Click here to automatically set the **Blade Offset** to 0.

Click again to automatically reset the **Blade Offset** to the last setting used.

2.07 Cut Type

- There are three modes in controlling where images will cut to the Zing. They are called:
  - ◊ **Knife Point**: Moves the shapes to cut at the origin. Use the blade tip to set the origin for cutting.
  - ◊ **WYSIWYG:** Cuts the shapes where they are positioned on the **Virtual Mat.** Use the laser light to set the origin- either at the corner of the cutting mat or the corner of the material (as described later in this section).
  - ◊ **Print and Cut:** Cuts shapes relative to registration marks printed on your printer. Refer to Chapter 9 for complete instructions on the print and cut process.

Select **Cut Type** mode to be used



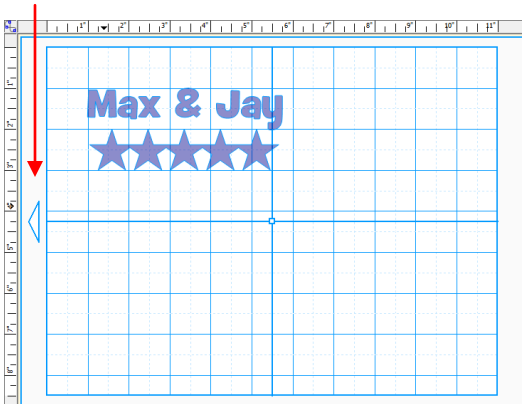
Knife Point

Video

- This is the mode recommended for most applications as it economizes the use of your cutting materials.
- Shapes can be located anywhere on the screen, including outside the **Virtual Mat**. The shapes will be moved and cut to where you set the origin on the material. The origin is set using the position of the **blade tip**.
- When more than one shape will be cut, the shape closest to the origin will be cut at the origin and any other shapes will be cut the distance and direction from that shape as positioned on the screen. The following figures show examples of where images will cut. Use the arrow on the **Virtual Mat** as a guide to the direction to insert the actual mat or material into your Zing.

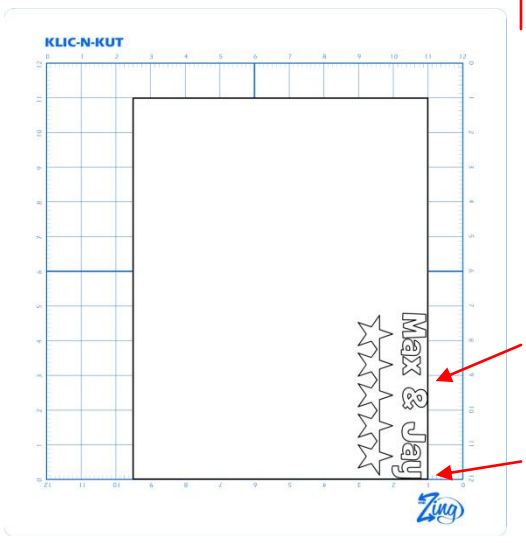
◊ Knife Point – Landscape Mode

Indicates **Landscape** mode



Location of shapes on the screen

Feed the mat this direction into the Zing

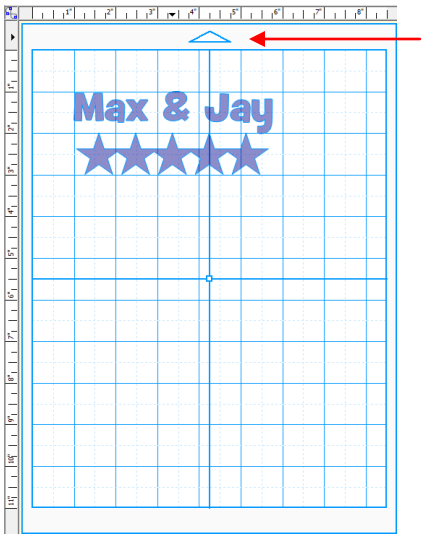


Shapes are cut to align with the origin you set on the Zing.

Origin set here using the blade tip

Where shapes are drawn or cut on material

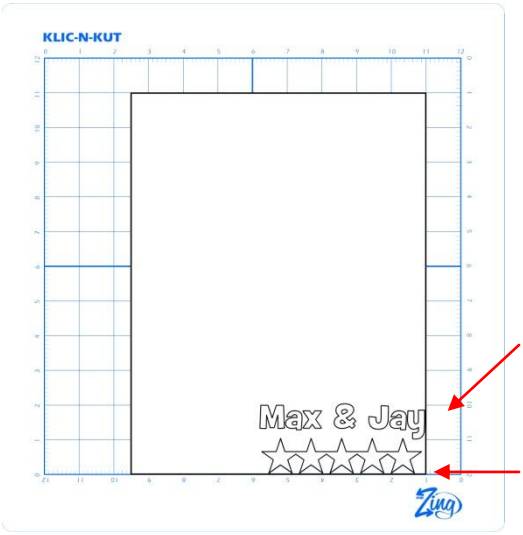
◊ Knife Point – Portrait Mode



Indicates **Portrait** mode

Location of shapes on the screen

Feed the mat this direction into the Zing

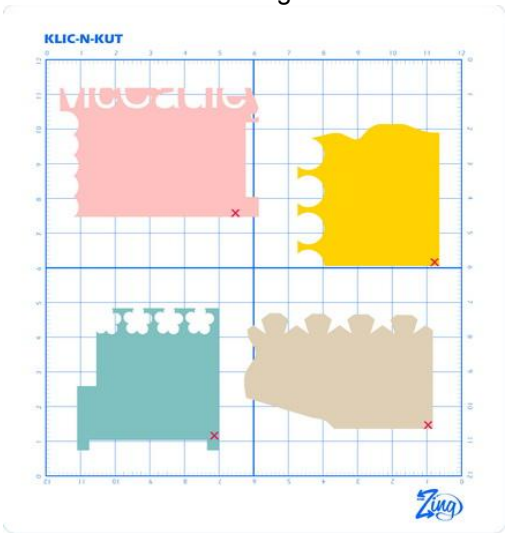


Shapes are cut to align with the origin you set on the Zing.

Origin set here using the blade tip

Where shapes are drawn or cut on material

- If you plan to use scraps of materials for cutting shapes, you will want to use the **Knife Point** mode:
  - ◊ Place several scraps (large enough for the shapes on your screen) on your mat in different locations, as shown below.
  - ◊ Insert the mat into the Zing and then set the origin at the lower right corner of one of the scraps and cut the currently selected shape.
  - ◊ Move the pen to the bottom right corner of the next scrap and set the origin there and cut the same shape (or another shape, depending on what you have on your **Virtual Mat).** Repeat for other scraps. Note the red "X"'s indicate where the origin would be set so as to not cut off the scrap:



Feed the mat this direction into the Zing

WYSIWYG

Video

- This is the mode recommended when you need to cut shapes in very specific locations on your material (such as the center front of a greeting card). The laser light is used to set the origin.

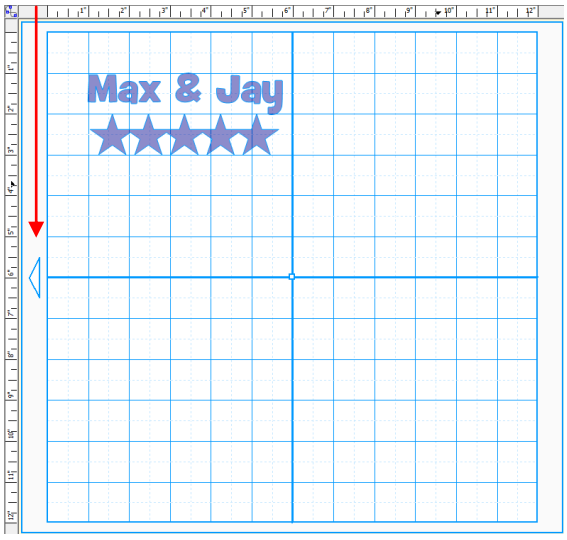
- Shapes are cut based on where they are located on the **Virtual Mat**. The mat dimensions should match either the ruled dimensions of the mat you are using or they should match the dimensions of the material you are cutting. These two situations are covered separately.

WYSIWYG – Virtual Mat Matches Ruled Grid on Actual Mat

- Create the typical mat that is sized 12” x 12” and uncheck the option to **Show Margins**. This will be a mat that matches the ruled dimensions of the Zing mat. You can use either **Portrait** or **Landscape** mode - just remember to place your material on the mat in the correct orientation for feeding into the Zing.
- The origin is set using the **laser light**, not the blade tip. The laser light will automatically turn on when you go to the **Set Blade Origin** window. Direct the red dot of the laser light to the **bottom right corner of the ruled grid** (see below). Note that if you need absolute precision for the location of your cuts, it will be necessary to calibrate the **Laser Offset**, which is covered in Chapter 9.

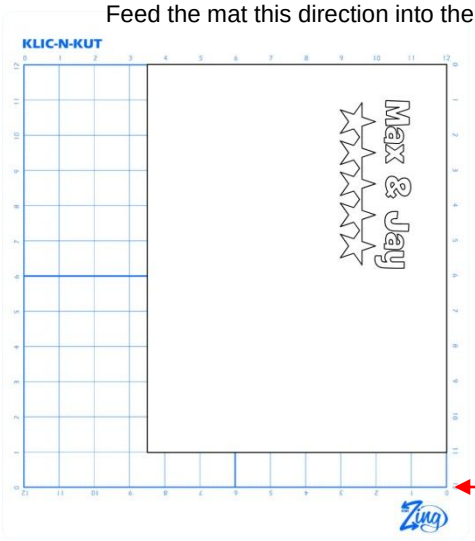
◊ WYWIWGY – Landscape Mode

Indicates **Landscape** mode



Location of shapes on the screen

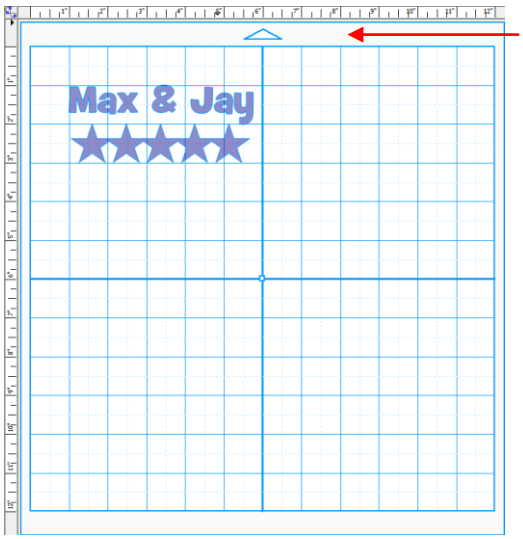
Feed the mat this direction into the Zing



Origin is set here using the laser light

Where shapes are drawn or cut on material

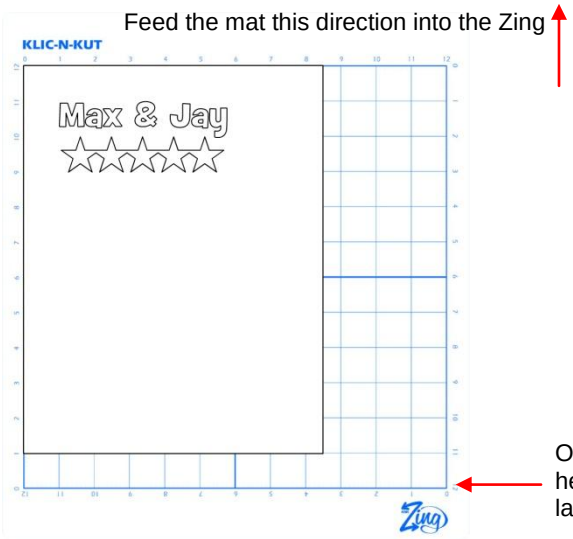
◊ WYWIWGY– Portrait Mode



Indicates **Portrait** mode

Location of shapes on the screen

Feed the mat this direction into the Zing



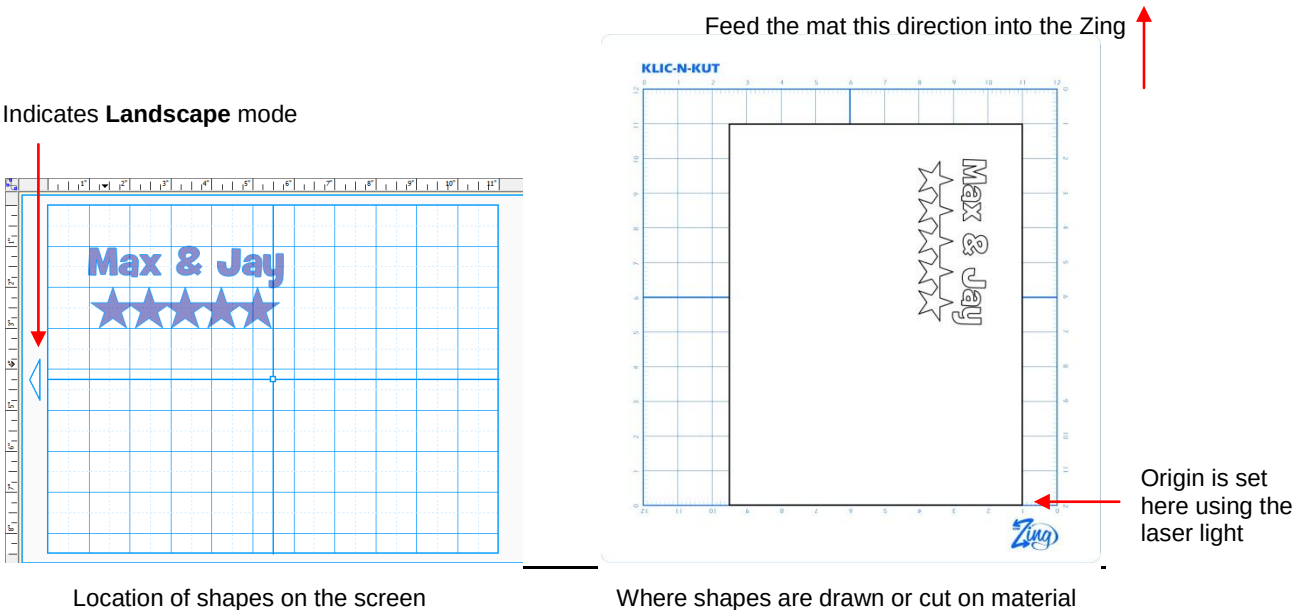
Origin is set here using the laser light

Where shapes are drawn or cut on material

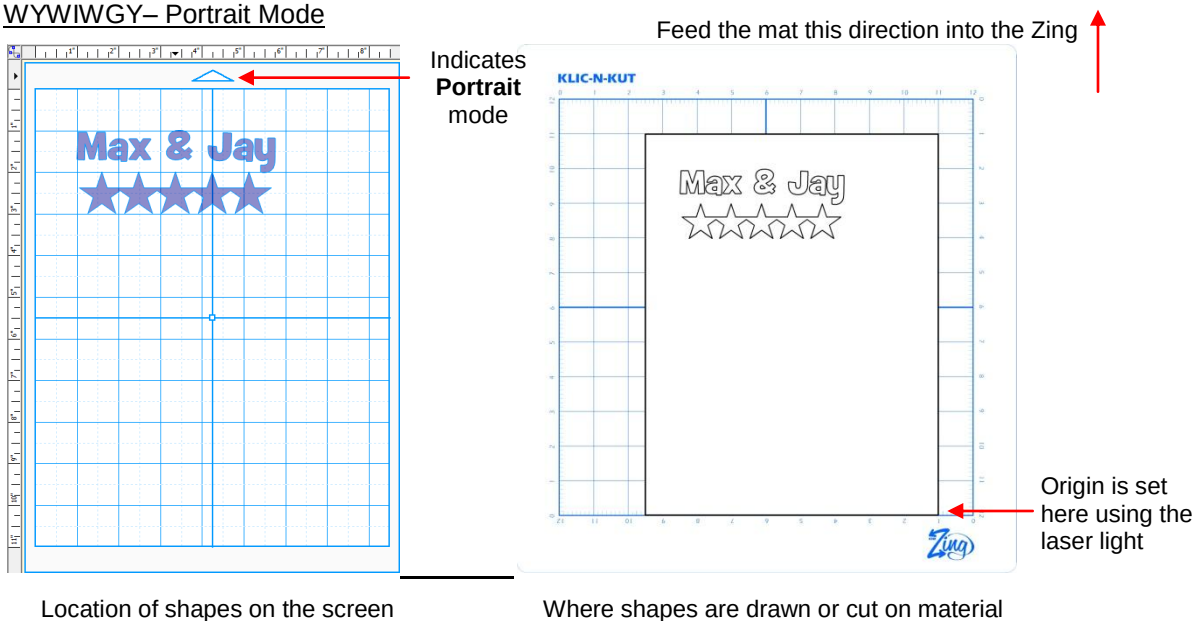
WYSIWYG – Virtual Mat Matches Material Dimensions

- Create a virtual mat that matches the material dimensions. For example, if you are cutting from an 8.5” x 11” sheet of cardstock, then create a **Virtual Mat** with those same dimensions. You can use either **Portrait** or **Landscape** mode - just remember to place your material on the mat in the correct orientation for feeding into the Zing.
- The origin is set using the **laser light**, not the blade tip. The laser light will automatically turn on when you go to the **Set Blade Origin** window. Direct the red dot of the laser light to the **bottom right corner of your material** (see below). Note that if you need absolute precision for the location of your cuts, it will be necessary to calibrate the **Laser Offset**, which is covered in *Chapter 9*.

◊ WYWIWGY – Landscape Mode


Feed the mat this direction into the Zing
Indicates **Landscape** mode
Max & Jay
KLIC-N-KUT
Origin is set here using the laser light
Location of shapes on the screen
Where shapes are drawn or cut on material

◊ WYWIWGY– Portrait Mode

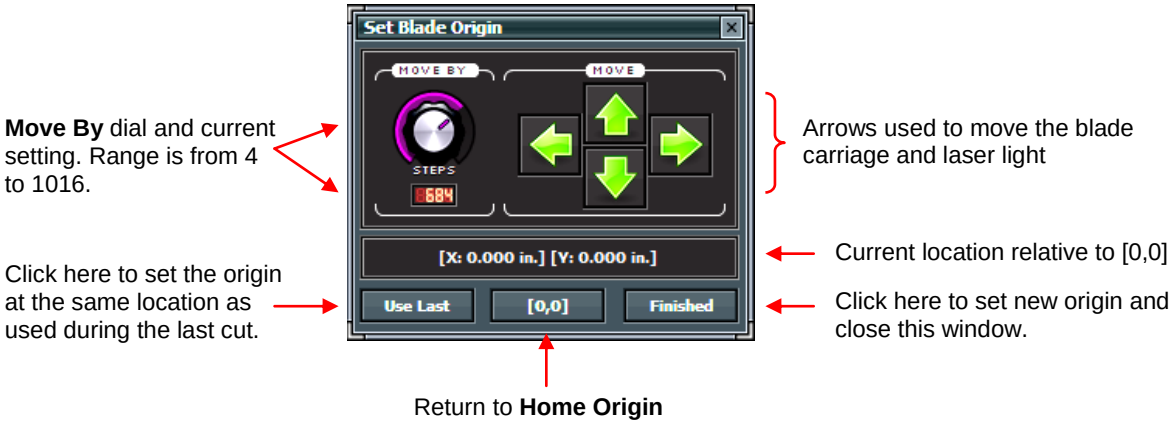

Feed the mat this direction into the Zing
Indicates **Portrait** mode
Max & Jay
KLIC-N-KUT
Origin is set here using the laser light
Location of shapes on the screen
Where shapes are drawn or cut on material

Print and Cut

- This is the mode recommended when you want to print images on your printer and then have the Zing cut them out.
- It is similar to WYSIWYG because shapes will be cut where they are located on the **Virtual Mat**. However, in the **Print and Cut** process, three printed registration marks are printed along with your images. The laser light is then set at each mark and the Zing will then cut out your shapes based on triangulation. This is far more precise than WYSIWYG because it takes into account not only any misalignment of your printout on the mat, but also any errors in the printing. Most printers do not print images precisely in the location on the paper as they are located on the screen.
- Note that raster images (.JPG, .BMP, .PNG etc) will need to be pixel traced first so that cut lines are created. Refer to *Chapter 6* for tutorials on how to do the pixel tracing (also called vectorizing).
- Refer to *Chapter 9* for tutorials on the print and cut process, including calibrating the laser.

2.08 Set Blade Origin

- Clicking on the **Set Blade Origin** button opens the **Set Blade Origin** window:


Set Blade Origin
MOVE BY
MOVE
STEPS
684
[X: 0.000 in.] [Y: 0.000 in.]
Use Last
[0,0]
Finished
Move By dial and current setting. Range is from 4 to 1016.
Arrows used to move the blade carriage and laser light
Current location relative to [0,0]
Click here to set the origin at the same location as used during the last cut.
Click here to set new origin and close this window.
Return to Home Origin

- Every time you turn on the Zing, the blade carriage will be moved to the same spot. This is called the **Home Origin** or **[0,0].** Now, you can always use that spot to start your cuts and never set a new origin, however it limits you, somewhat, in situations where you may be performing your test cut at that location but will need to move over to a new location to cut out your shapes. Also, you may want to cut shapes from several scraps of material and would like to place those scraps on your mat prior to cutting.
- The **Set Blade Origin** window allows you to move the blade carriage to a new location and define that location as the new origin for that cut:
  - ◊ Click on the green arrows to move the carriage left and right and the mat in and out of the Zing until the blade carriage is in the location you wish to use. **IMPORTANT:** At the current time of this writing, there is a software bug which will be invoked if you use the **Up** arrow (either in the software or on your keyboard) to move the mat more than 1" in that direction. If you do move more than 1" in that direction, and then press the **Cut Project** button, the blade carriage will return to the **Home Position** instead of cutting. So, before setting the origin, lift the pinch rollers on the Zing and slide the mat towards the back to better approximate the front-to-back location of your first cut.
  - ◊ In **Knife Point** mode you will be setting the origin based on the location of the blade tip (or other tool tip).
  - ◊ In **WYSIWYG** or **Print and Cut** modes, you'll be using the laser light to set your origin.
  - ◊ Note that you can also use the arrow keys on your keyboard instead of clicking on the green arrows on the screen. This is actually a great alternative since you can then keep your eyes on the blade tip or the laser instead of constantly looking back at the screen to click in the correct spot.
- The **Move By** dial determines how far the blade carriage moves with each click of an arrow:

- ◊ If you need to move the carriage quite a distance across the mat, then adjust that setting to a high number.
- ◊ If you need to move the carriage less than an inch or so, then adjust to a much smaller setting.
- ◊ If you need extreme precision such as when you are setting the origin for a **Print and Cut**, then once you are close to the location you need, reduce to the minimum setting of 4.
- ◊ Note that when using the arrow keys on your keyboard, you can adjust the **Move By** dial by holding the **Ctrl** key and clicking on the up and down arrow keys.

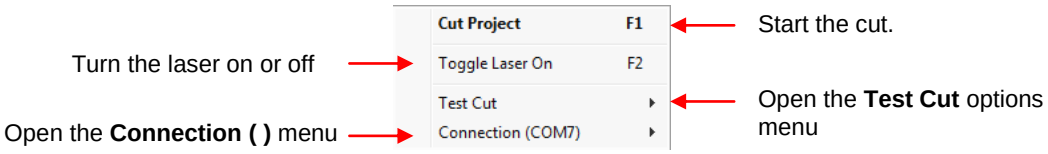
- If you want the blade carriage to return to the **Home Origin,** then click on the **[0,0]** button and the blade carriage will immediate return to that location.
- If you want to use the same origin that was just used in your last cut, then click on the **Use Last** button and the blade carriage will return to the same **[X,Y]** location previously set.
- Once the blade carriage (or laser dot) is in the location you need, click on the **Finished** button to set that location as the new origin and close that window.

2.09 Connection Status and Test Cut Menu

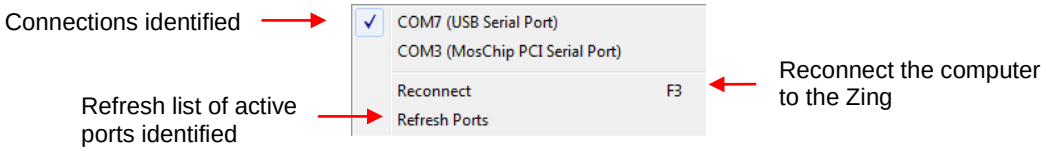
- The **Connection Status and Test Cut Menu** button serves several functions:
  - ◊ The button will either read **Connected (Com X)** or **Not Connected** depending on whether or not the computer has identified a connection to the Zing:

Zing is assigned to Com 7 and is ready to cut
Connected (COM7)
Not Connected
No connection is identified. Refer to *Section 1.09*.

  - ◊ Clicking on this button will open a menu:


Cut Project F1
Toggle Laser On F2
Test Cut
Connection (COM7)
Start the cut.
Turn the laser on or off
Open the **Test Cut** options menu
Open the **Connection ( )** menu

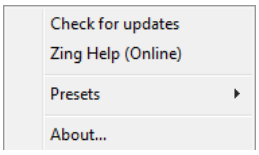
  - ◊ The laser can be turned on or off in this menu by choosing **Toggle Laser On**. Or, any time you are in the **Cut with Klic-N-Kut Zing** window, you can press **F2** to toggle the laser. The laser will also be turned on when going to the **Set Blade Origin** window.
  - ◊ The **Test Cut** options menu contains a list of ten possible shapes to use for your test cut. Performing a test cut is essential to make sure the cut settings, blade exposure, and blade tip height are correctly set before executing your actual cut. In some situations you will want to select a shape based on your actual shape. For example, cut the flower if you are going to be cutting a shape that has scallops. Or cut the rhinestone template if you will be cutting an actual rhinestone pattern to verify that you will get clean weeding of the circles.
  - ◊ The **Connection ( )** menu opens with the following options:



2.10 Updates, Presets, and Help

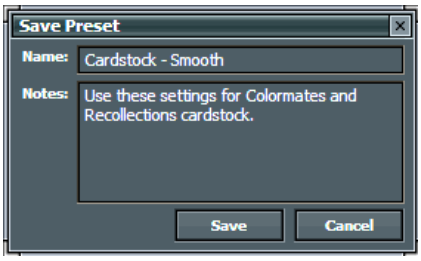
- The **Updates and Help** drop down menu is activated by clicking on the down arrow in the top right corner of the Cut with Klic-N-Kut Zing window:

- The following menu appears:

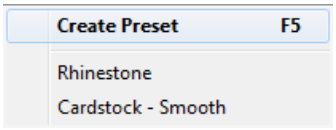


- In this menu, you can check for updates to the plug-in, access the on-line Zing user manual, and check the current version number of the Zing plug-in installed.
- Presets are default settings (**Speed**, **Force, Multicut, Blade Offset** and **Cut Type)** you want to always use for a particular material or application:
- Enter the values you want to use in the **Cut with Klic-N-Kut Zing** window. For example, for thin smooth cardstock, you might choose to set the two **Speed** values at 10, **Force** at 85, **Multicut** at 1, **Blade Offset** at 0.35 and the **Cut Type** at **Knife Point**.
- Then access the **Presets** menu by clicking on the drop down arrow and selecting **Presets**:

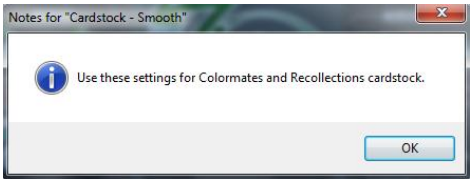
- Select **Create Preset** and the follow window will open where you can enter a name for your new **Preset** and any **Notes** you wish to have:



- After clicking on **Save**, the new **Preset** appears in the list:



- Clicking on a **Preset** in your list will then change the current settings in the **Cut with Klic-N-Kut Zing** window to the settings you saved and the **Notes** you entered will pop up:



- To delete a **Preset**, right click on the name in the list and a popup window will ask you to confirm if you wish to delete.

2.11 Important Checklist Before You Cut!

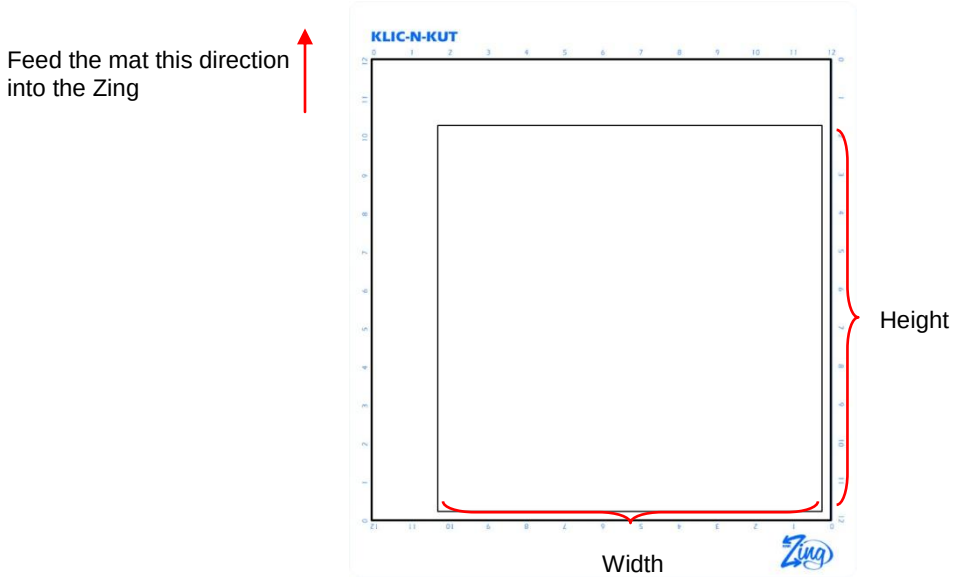
- Do you have your material on the mat and the mat inserted into the Zing? (Note: materials with a backing sheet, such as vinyl and iron-on transfer do not require a mat for cutting)

- Do you have the pinch wheel levers raised in the front (so that the pinch wheels are down)?
- Have you set the blade length based on the thickness of the material you are cutting?
- Do you have the blade holder firmly mounted in the blade holder seat and the blade tip at the correct height above the material?
- Have you set the **Origin** at the bottom right corner of your material (or wherever you need the origin to be)?
- Have you set the **Force**? And the **Speed**?
- Have you selected the correct **Offset**?
- Do you need to turn on **Multi-cut** for this material?
- Have you selected the **Cut Type** you wish to use? Do you know, with confidence, where your shapes are going to cut?

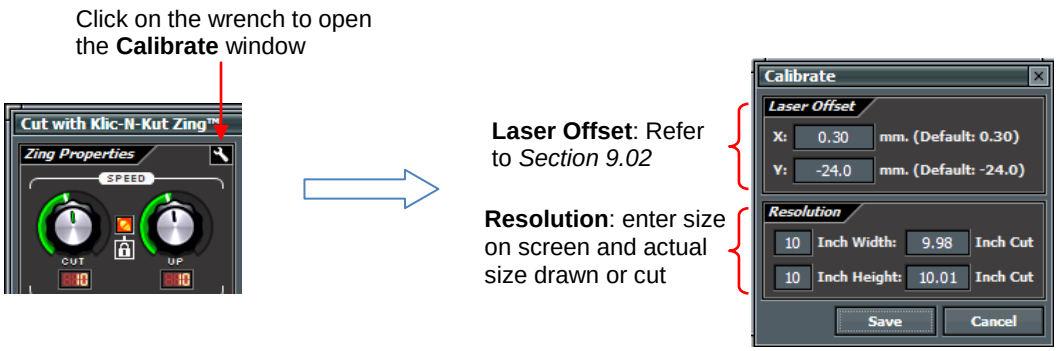
2.12 Resolution Calibration

- If you were to cut out any particular shape, for example, a 10" x 10" square, you might find that it actually measures 9-15/16" x 10-1/32". It will be very close to 10" x 10" but perhaps just slightly smaller or larger in either or both dimensions. Thus, one of the available calibrations involves inputting a width and a height resolution that will be used to adjust all of your cutting so that shapes will cut at exactly the same sizes as the width and the height dimensions of shapes in the software.

- Note that this **Resolution** only applies to **Knife Point** and **WYSIWYG** cutting modes. For Print and Cut applications, **Resolution** is determined automatically based on where the registration marks are set with the laser light during the print and cut process.
- Begin by drawing a square in MTC. Double click on the screen to set a location for the square. Note that the larger the square, the more accurate your calibration will be, thus it is highly recommended that you use at least a 10" square, if you have paper large enough for drawing. If not, then use letter size paper and make the square 8" in size. If needed, refer to *Section 3.13* for directions on resizing shapes.
- It is recommended that you use the test pen for drawing versus the blade. This will allow you to reuse the same sheet of paper for several tests, during the calibration process. You will also need a ruler.
- Click on the **Cut Project With** icon and, under **Cut Type**, choose **Knife Point**. Set the origin and click on **Cut Project** to have the square drawn on the piece of paper.
- Slide the mat out but leave the paper on the mat. Note that regardless of having your **Virtual Mat** set to **Landscape** or **Portrait**, the **Width** of the square is the left-to-right dimension as you face the Zing. The **Height** of the square is the front to back dimension:



- Because the Zings are so very close to being perfectly accurate, only take note if the sides are slightly larger than 10” or slightly smaller than 10” because it will probably be so close that you cannot even measure the distance from 10” with a ruler! Instead, let’s say the **Height** is just the tiniest bit over 10”. Mark that side as being 10.01”. Let’s say the **Width** is under 10”, more so than the **Height** was below. Mark that side as 9.98”. Now, if you feel you can measure accurately, with a ruler, then do so. But just estimating should work fine, too.
- Click on the **Cut Project With** icon again, and click on the tiny wrench icon. The Calibrate window will open where you can input your measurements. Note that if you used a square that was either larger or smaller than 10”, then be sure to change those numbers on the left, as well as inputting the numbers on the right:



- Click on **Save**.
- Now, you’ll want to repeat the drawing of the square and you can use the same paper as long as you move the origin to a new location and you make sure your new square will fit on the same sheet.
- After drawing the new square, again, align with a ruler to see how closely the square matches 10” x 10”. If you overcorrected then go back and input a smaller correction. If you didn’t correct by enough, then input a larger correction.

Suggested Settings for Various Materials[1]

Material Type	Material Brand or Source	Blade	Force	Speed (Cut/Up)	Blade Offset	# Passes	Other Comments
Acetate	Grafix - 0.005"	Red	60	10 / 10	0.35	1	
Balsa	1.5 mm from Michael's	Blue	125	8 / 11	0.6	2	Doesn't handle very thin parts: use light
Cardstock	Bazzill - various textures	Red	70-95	10 / 10	0.35	1 or 2	Can vary greatly based on texture and color
Cardstock	Bazzill Two Scoops Paper	Red	80	9 / 10	0.35	1 or 2	Use 2 passes on complex shapes
Cardstock	DCWV - Textured Brights	Red	65-85	10 / 10	0.35	1	Varies with color
Cardstock	Recollections	Red	55-70	10 / 10	0.35	1	
Cardstock	Coordinations	Red	85-100	10 / 10	0.35	1	
Cardstock	Georgia Pacific 100#-white	Red	65	10 / 10	0.35	1	
Cardstock	Stampin Up - white	Red	80	10 / 10	0.35	1	Other colors may need more force
Cardstock	WorldWin Cutmates (knkusa.com)	Red	60-70	10 / 10	0.35	1	
Chipboard	0.03" (knkusa.com)	Blue	140	9 / 10	0.75	1	May need 2 passes on small detail
Chipboard	Cereal Box	Blue	110	9 / 10	0.75	1	May need 2 passes on small detail
Duralar	0.005" (digitalcuttersplus.com)	Red	90	10 / 10	0.35	1	
Fabric - thin cotton	Type used for quilting - with stabilizer	Fabric	80	9 / 10	0.75	2	With Heat n' Bond pre-applied
Fabric - thin cotton	Type used for quilting - no stabilizer	Fabric	90	10 / 10	0.7	2	Pressed to extra-sticky mat
Felt - stiffened	~1/16" from Michael's	Blue	125	9 / 10	0.75	3	Taped to a sticky mat
Foam	Fun Foam from Michael's	Blue	5	9 / 10	0.75	2	
Sugar Sheets	Wilton	Red	40	9 / 10	0.35	1	Used margarine to adhere sheet to non-sticky mat
Icing Sheets	Cut-N-Frost by PhotoFrost	Yellow	20-45	10 / 10	0.75	1 or 2	Thin sheet version not recommended
Iron-on Transfer		Red	20	10 / 10	0.35	1	
Leather	Bookbinding quality	Red	90	10 / 10	0.35	2	
Lutradur - Heavy Wt	ctpub.com	Red	50	9 / 10	0.35	2	Doesn't handle very thin parts: use light

[1]These settings should be used for the initial test cut. Adjustments may be necessary based on the condition of the blade, variations in the material, humidity, condition of the cutting mat, etc. Most tests were done with a blade tip height equal to a stack 25 Post-it notes or 12 Georgia Pacific 100# cardstock pieces.

Material Type	Material Brand or Source	Blade	Force	Speed (Cut/Up)	Blade Offset	# Passes	Other Comments
Lutradur - Light Wt	ctpub.com	Red	50	10 / 10	0.35	1	
Magnet - Printable	20 mil	Blue	140	9 / 10	0.75	2	
Mylar - 0.005"	Tapplastics.com	Red	90	10 / 10	0.35	1	
Paper - Copy/Printer	20 lb Mult-purpose	Red	20	10 / 10	0.35	1	Set blade to minimal exposure
PhotoFrost Icing Sheet - Thick	PhotoFrost	Yellow	20-45	10 / 10	0.75	1-2	Thin sheet version not recommended
Photo Paper	HP Advanced - Glossy	Red	100	10 / 10	0.35	1	
Rhinestone Template Material	knkusa.com	Blue	100	10 / 10	0.75	2	Peel off backing,place sticky side onto mat
Shrinky Dink	Frosted Ruff N' Ready	Red	130	10 / 10	0.35	1	Taped to mat
Shrink Film	Grafix - clear	Red	130	10 / 10	0.35	2	Taped to mat
Sticky Flock		Red	60	10 / 10	0.35	1	Used 2 credit cards to set blade height
Transparency Film	HP (from Office Max)	Red	70	10 / 10	0.35	1	
Vellum	digitalcuttersplus.com	Red	35	10 / 10	0.35	1	
Vellum - thin	WorldWin Colormates	Red	20	10 / 10	0.35	1	
Vellum - heavy 48#	WorldWin Colormates	Red	90	11 / 10	0.35	1	
Vellum	Medium wt with texture	Red	70	10 / 10	0.35	1	
Vellum	Heavy	Red	80	10 / 10	0.35	1	
Vinyl		Red	5 - 15	10 / 10	0.35	1	
Vinyl - Cling	digitalcuttersplus.com	Red	35	10 / 10	0.35	1	
Vinyl - printable	knkusa.com	Red	15	10 / 10	0.35	1	

Settings Form for Cutting Materials

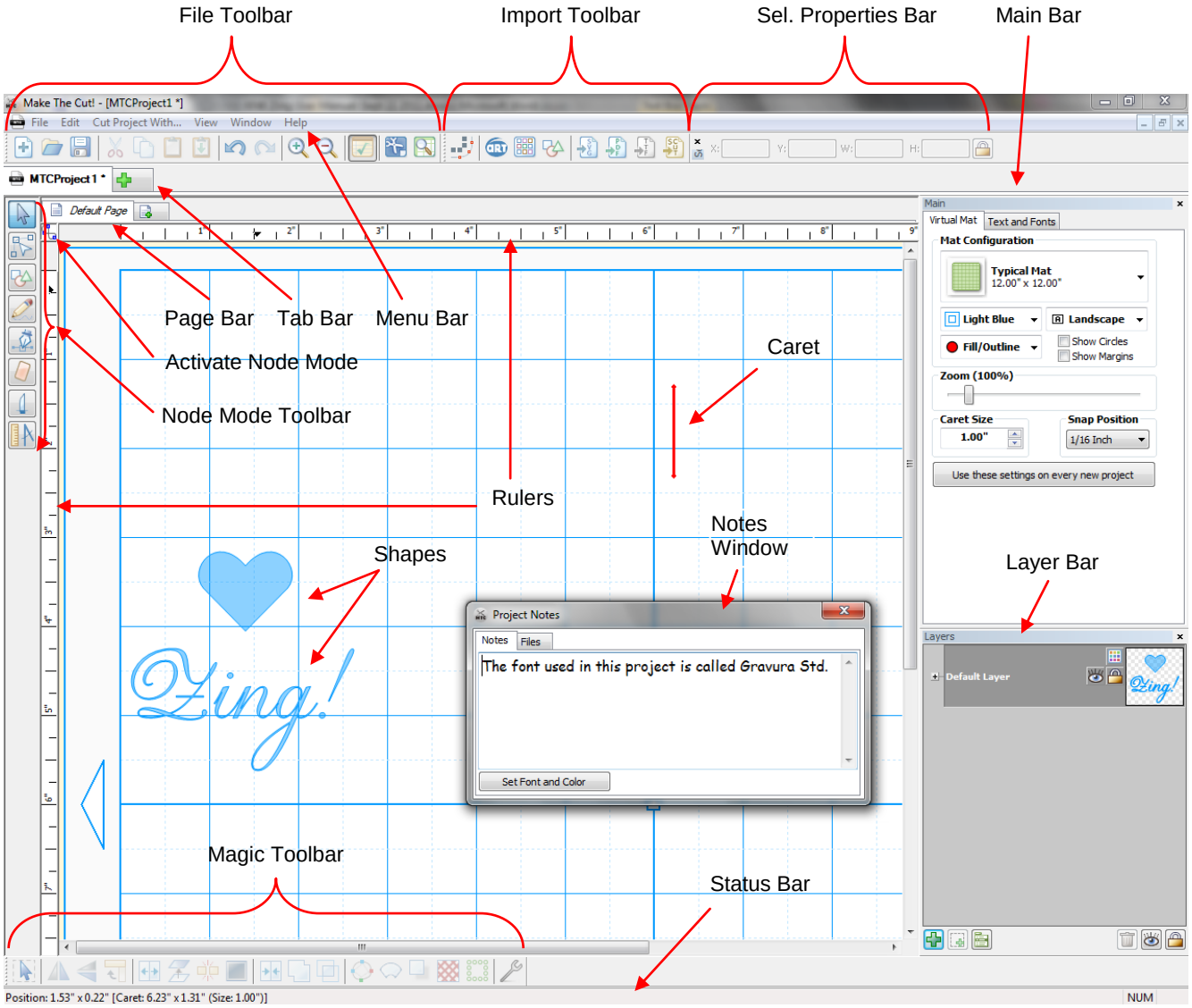
Material Type	Material Brand or Source	Blade	Force	Speed (Cut/Up)	Blade Offset	# Passes	Other Comments

3. MTC Basics

This chapter begins the Make-The-Cut User Manual. As noted on the first page, this is meant to be an online interactive manual. Refer back to that page for features to use while reading online. It is highly recommended that you do not print this entire manual. It will be updated frequently as additions and changes are made to the software. Also, during the next few months, you will begin to see hyperlinks to online videos. These are provided to enhance your learning experience. Wherever you see a large green "Video" icon, click on it to automatically link to and open a video related to the topic that follows:

3.01 Main MTC Screen

Below is a screen shot of the main screen in MTC identifying toolbars, bars, and other important elements on the screen. Note the specific names of the items shown as they will be referenced throughout this user manual:



- Shown above are four **Toolbars,** seven **Bars**, one **Window,** two **Rulers,** two **Shapes,** and a **Caret**.
- Some of the elements shown, such as the **Rulers**, **Notes Window**, as well as some of the **Toolbars** and **Bars**, can be turned on or off by going to **View** on the **Menu Bar**.

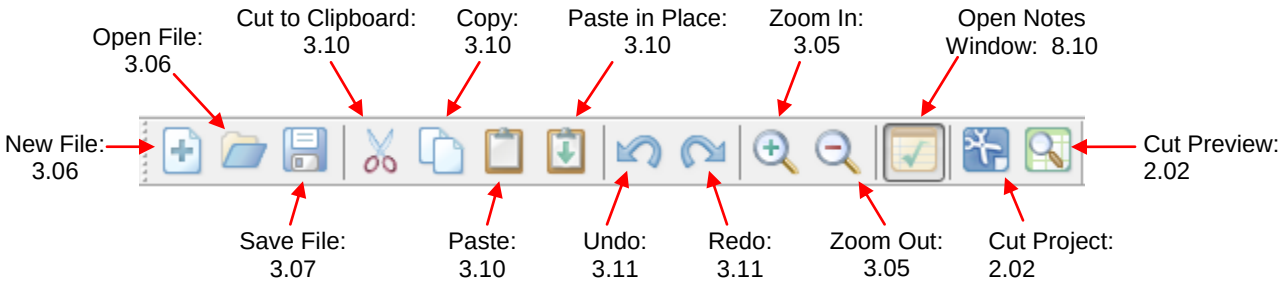
- Hovering your mouse over any of the screen icons will pop up the icon's name and/or function and shortcut key. Identification of these icons is also presented in *Sections 3.02*, *3.03*, and *7.06*.
- Most of the bars and toolbars may be moved to different locations on the screen. Hold down the left mouse button on the gray dots along the left side of the bar or toolbar and drag. To position these bars and toolbars vertically, drag to the left or right edge of the screen.
- **Shapes** are the objects or images that you will be adding to your projects. They can be created from scratch or imported from other sources. As you will see throughout sections in this user manual, you have many options and resources available to you!
- The **Caret** indicates where an imported or pasted shape will be placed and the height of that shape. To move the **Caret**, double click at any desired location on the screen. The size of the **Caret** can be changed on the **Virtual Mat** tab (refer to *Section 3.04*).
- The **Notes Window** (also called **Project Notes**) is opened from **View** on the **Menu Bar**. This is used to provide information such as instructions or Terms of Use, and to attach files. Refer to *Section 8.10.*
- There is also a ***Lettering Delights*** window that can be opened from **View** on the **Menu Bar**. When you first open MTC, a popup may ask you if you want to open this window. For details about the Lettering Delights function, refer to the last part of *Section 4.07.*
- Not all of the functions in MTC appear as icons. Thus, check the subheadings within the *Table of Contents* to find more functions to use in designing your cutting files.

3.02 Toolbars

There are four toolbars in MTC: **File**, **Import**, **Magic, and Node Mode**. In this section, only the individual icons will be identified. To learn more about using the functions, refer to the user manual sections indicated under the icons.

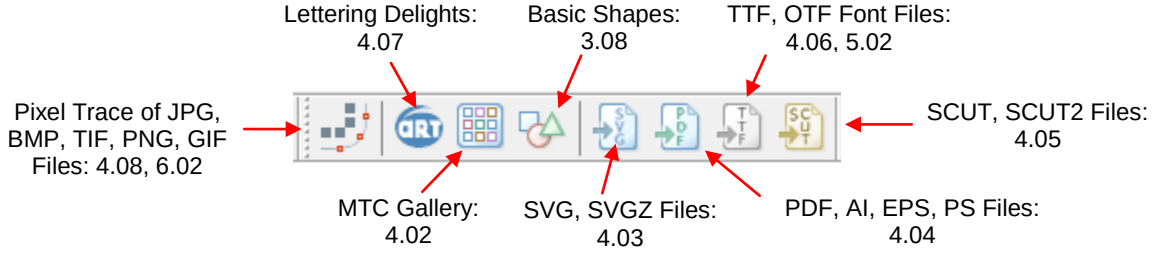
File Toolbar

- The **File Toolbar**, by default, is located at the top left of the screen. It can be turned on and off under **View** on the **Menu Bar**.



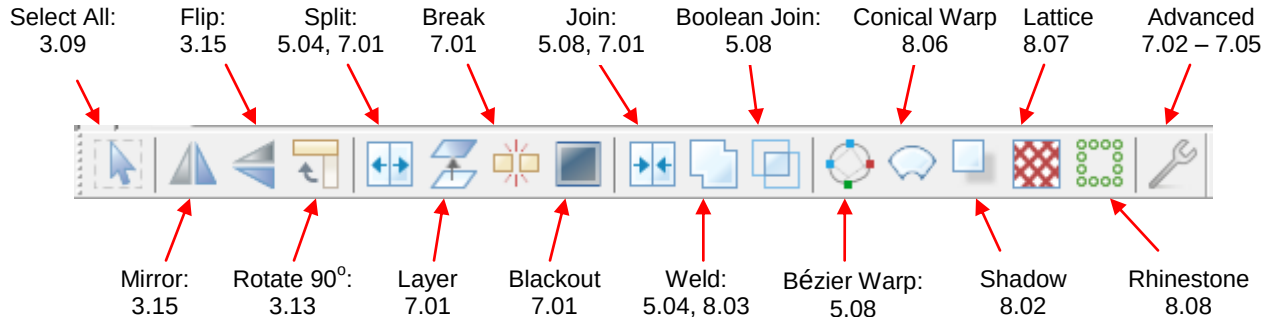
Import Toolbar

- Use the **Import Toolbar** to import the following file types:


Lettering Delights: 4.07
Basic Shapes: 3.08
TTF, OTF Font Files: 4.06, 5.02
Pixel Trace of JPG, BMP, TIF, PNG, GIF Files: 4.08, 6.02
SCUT, SCUT2 Files: 4.05
MTC Gallery: 4.02
SVG, SVGZ Files: 4.03
PDF, AI, EPS, PS Files: 4.04

Magic Toolbar

- The **Magic Toolbar** contains the functions that are used in editing and designing:



Node Mode Toolbar

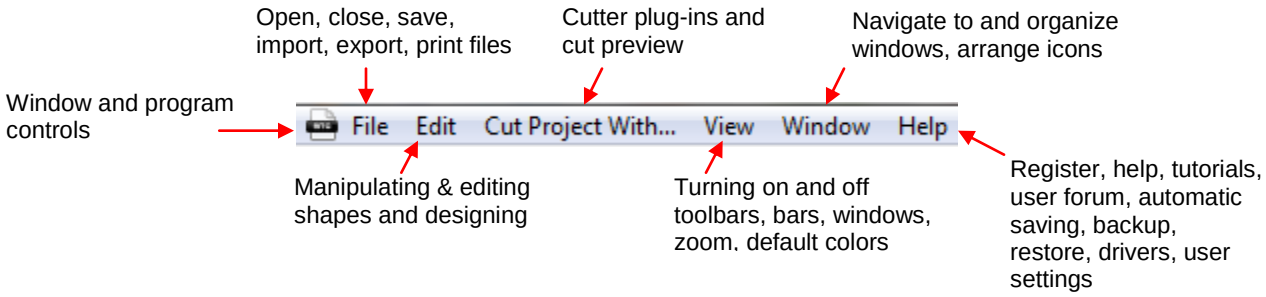
- The **Node Mode Toolbar** contains the functions used in editing paths and nodes in vector images. You may never find it necessary to use these tools. But if you need the ability to modify images at the most basic level, the tools are available and powerful in their functionality. Refer to *Section 7.06* for identification of the individual icons and how to use them.

3.03 Bars

There are seven bars in MTC, presented below. In this section, only the individual icons will be identified. To learn more about using the functions, refer to the user manual sections as indicated.

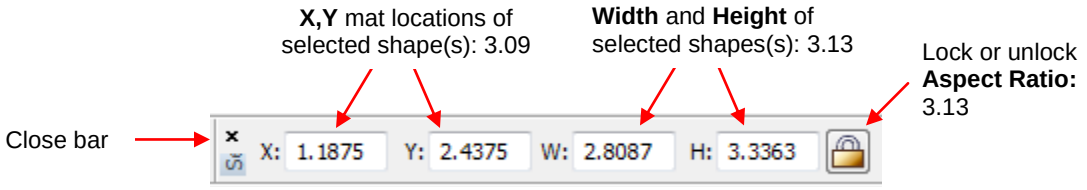
Menu Bar

- Like most Windows applications, the **Menu Bar** in MTC provides access to most of the functions in the software. The following text boxes indicate the primary functions found in each of the **Menu Bar** choices:


Open, close, save, import, export, print files
Cutter plug-ins and cut preview
Navigate to and organize windows, arrange icons
Window and program controls
File Edit Cut Project With... View Window Help
Manipulating & editing shapes and designing
Turning on and off toolbars, bars, windows, zoom, default colors
Register, help, tutorials, user forum, automatic saving, backup, restore, drivers, user settings

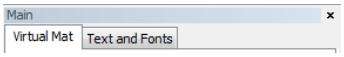
Sel. Properties Bar

- The **Select Properties Bar** displays the location and size of the current selected shape or shapes:


X,Y mat locations of selected shape(s): 3.09
Width and **Height** of selected shapes(s): 3.13
Lock or unlock **Aspect Ratio:** 3.13
Close bar
X: 1.1875 Y: 2.4375 W: 2.8087 H: 3.3363

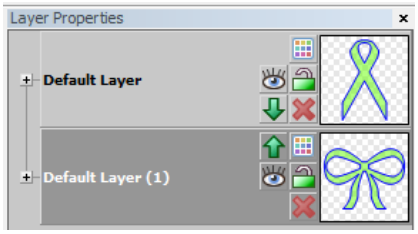
Main Bar

- The **Main Bar** has two tabs: **Virtual Mat** and **Text and Fonts**. The **Virtual Mat** tab allows you to set the size and visual appearance of the mat, as well as orientation, the appearance of shapes, snapping to grid, and **Caret** size. Refer to *Section 3.04*. The **Text and Fonts** tab allows you to select a font, open a new font, and type text. Refer to *Section 5.02.*



Layer Bar

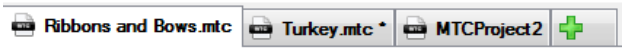
- The **Layer Bar** is used to organize shapes into layers for both visual display and for cutting by color. All shapes on a layer may be re-colored, hidden from view, locked, deleted, and moved up or down. Refer to *Section 3.12.*



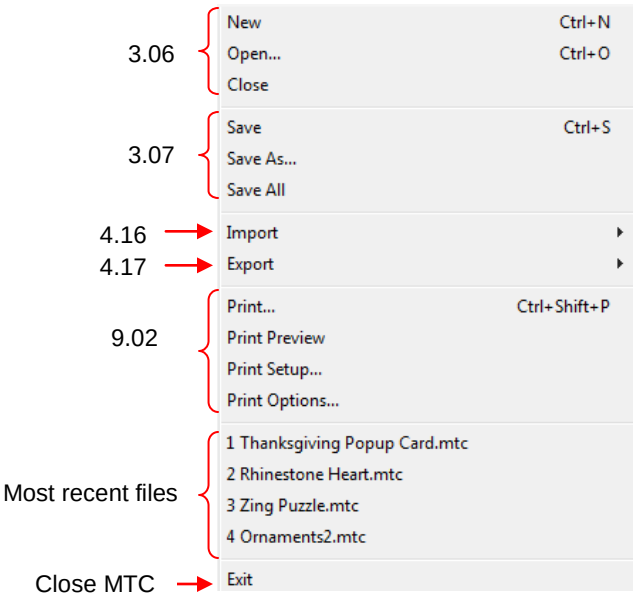
Tab Bar

- In MTC, opened files are also called **Projects**. The **Tab Bar** shows all of the currently open projects. Under **Windows** on the **Menu Bar**, you can choose how to view opened projects, with similar display options found in other Windows programs (such as **Cascade**, **Tile Horizontal**, **Tile Vertical**, etc).

Open Projects (Files): 3.06 →



- Right click on any **Project** name on the **Tab Bar** and a menu of options will appear. This screenshot indicates the user manual sections where this will again be referenced:

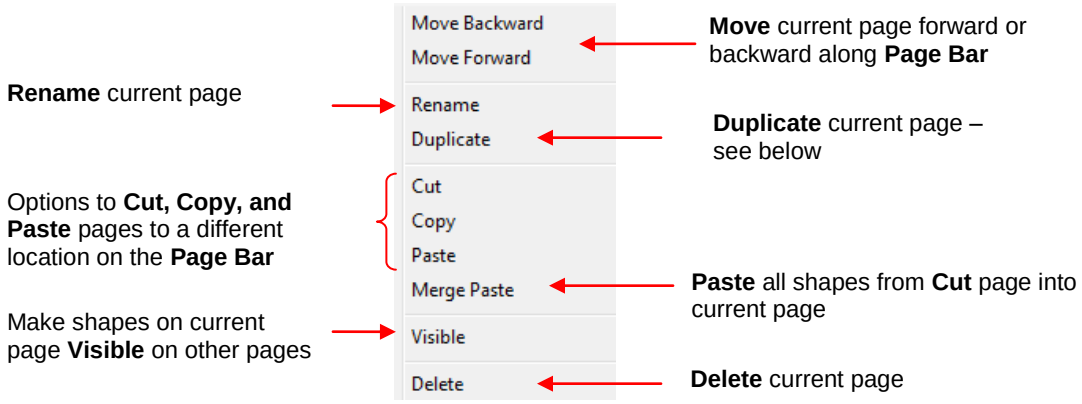


Page Bar

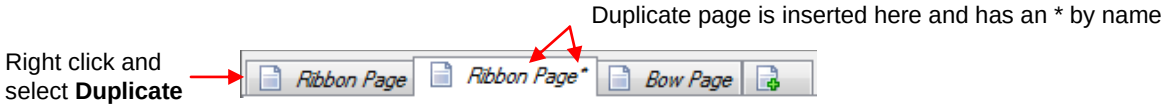
- The **Page Bar** allows you to move shapes or layers to individual pages within the same project file. Each page will have its own tab and the pages can be renamed or deleted, as desired.

Click here to add a new blank page.

- Right click on any **Page** name on the **Page Bar** and a menu of options will appear:

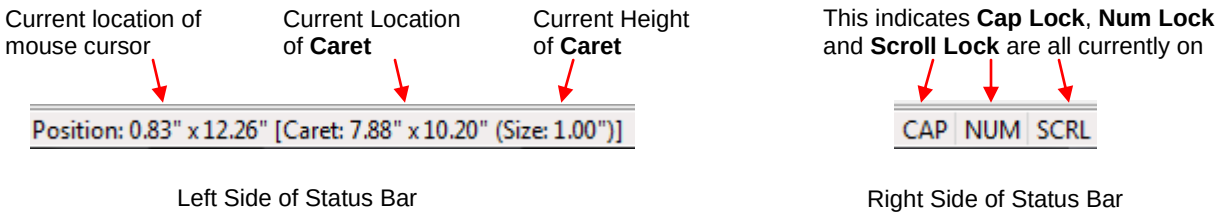


- When you select the **Duplicate** option, it will make a copy of the current page, giving it the same name with an asterisk added. The new duplicated page will be located to the immediate right of the original:

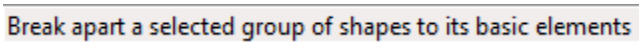


Status Bar

- The **Status Bar,** at the bottom of the screen, provides different sets of information, depending on where your mouse cursor is positioned:
  - ◊ If you have your cursor on the main open part of the screen, the **Status Bar** shows the location of the mouse cursor, the location and size of the **Caret**, and which **Scroll Locks** are currently activated:


Current location of mouse cursor
Current Location of **Caret**
Current Height of **Caret**
This indicates **Cap Lock**, **Num Lock** and **Scroll Lock** are all currently on
Position: 0.83" x 12.26" [Caret: 7.88" x 10.20" (Size: 1.00")]
CAP
NUM
SCRL
Left Side of Status Bar
Right Side of Status Bar

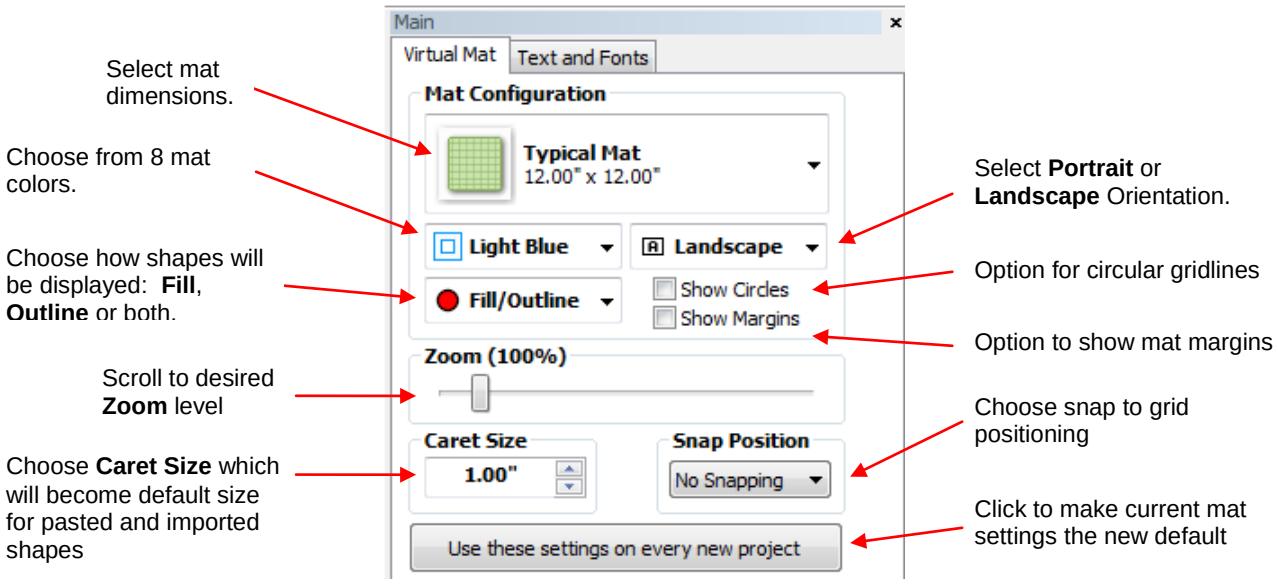
  - ◊ If you hover your mouse over one of the icons on a bar or toolbar or if you open one of the dropdown menus from the **Menu Bar**, the **Status Bar** typically provides additional information about the purpose of that icon or menu choice. For example, resting the mouse over the **Break** icon, causes the **Status Bar** to display the following:



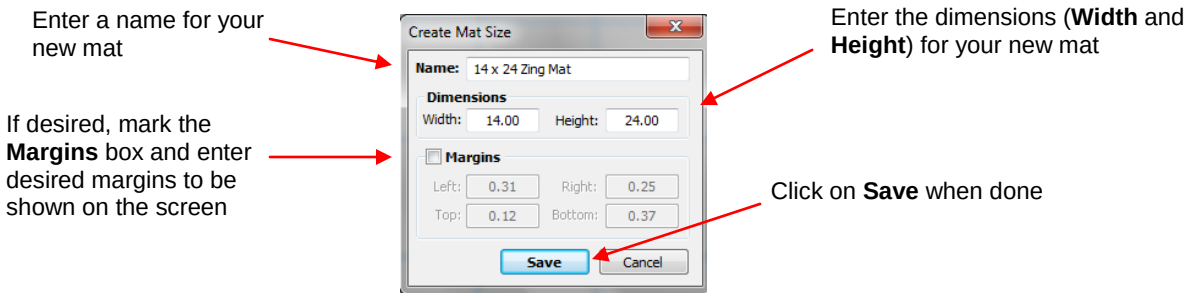
3.04 Virtual Mat

- The **Virtual Mat** serves as a design area for the software, as well as to indicate, in some cutting modes, where the shapes will be cut.

- To change the appearance of the mat, click on the **Virtual Mat** tab on the **Main Bar**:



- You also have the option to create your own custom mat sizes to add to the drop down list. Select **Custom Mat** from the drop down menu and the following window will open:



- For the Zing and other KNK cutters, having a margin isn't necessary, thus the **Margin** options can be left unchecked. For cutters that have areas of the mat that cannot be used, then enter the necessary margins.
- If you wish to delete a custom mat from the dropdown menu, select it and the press the **Delete** key or just right click on the mat name and an option to delete will open. If you saved a file with a custom mat and then share the file with another MTC owner, your mat will be added to his/her dropdown menu in MTC.

3.05 Zooming and Panning

- Any of the following methods will allow you to zoom in and out in 10% increments from 20% to 1000%:
  - ◊ Hold down the **Ctrl** key while rolling the mouse wheel. The zoom will center on where the mouse cursor is currently located on the screen.
  - ◊ Scroll the **Zoom** setting on the **Virtual Mat** tab on the **Main Bar**
  - ◊ Press the **+** and **–** buttons on the keyboard
  - ◊ Click on the **Zoom In** and **Zoom Out** buttons on the **File Toolbar**.
- Another way to zoom in and out is to use one of 4 shortcut keys (also available under **View>Zoom To)**:
  - ◊ **1** (or press the middle button on the mouse): Zoom to 100%
  - ◊ **2**: Zoom to 20%
  - ◊ **3**: Zoom to center of current-selected shapes using current zoom level
  - ◊ **4**: Zoom to 300%

- ◊ **5 – 0**: Zoom to 500%, 600%, etc to 1000%

- To move the workspace up and down, roll the mouse wheel.
- To pan, press the **Spacebar** while dragging the left mouse button.

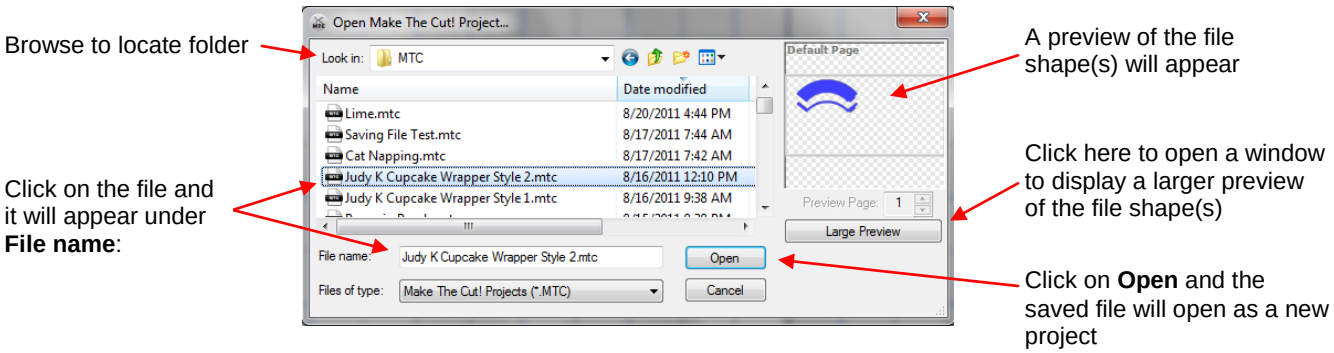
3.06 Opening MTC Files

Opening a New File/Project

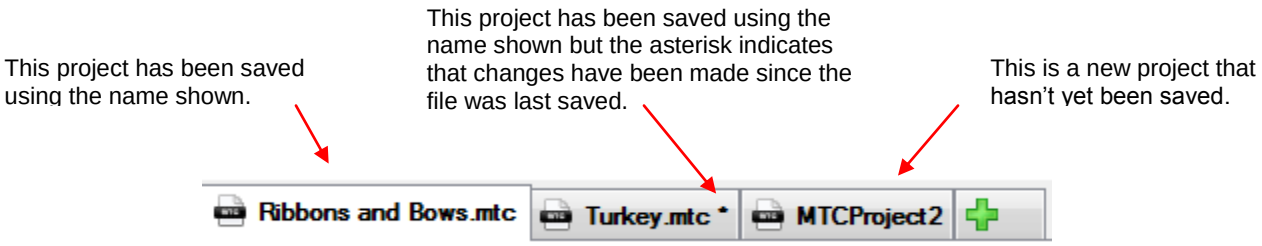
- When you launch MTC, a new blank **Virtual Mat** will appear with a new blank project opened. At any time, another new project can be opened, in a new window, using any of the following:
  - ◊ Click the "**+**" icon on the **Tab** bar
  - ◊ Right click on a project tab on the **Tab Bar** and select **New** from the menu
  - ◊ Click on the **New** icon on the **File** toolbar
  - ◊ Press **Ctrl+N**
  - ◊ Go to **File>New.**

Opening an Existing MTC File

- An existing file can be opened into MTC by using any of the following:
  - ◊ Click on the **Open** icon on the **File** toolbar
  - ◊ Right click on a project tab on the **Tab Bar** and select **Open** from the menu
  - ◊ Press **Ctrl+O**
  - ◊ Go to **File>Open**
  - ◊ Double clicking on an MTC file in Windows Explorer or attached to an email
  - ◊ Import from **MTC Gallery** (refer to *Section 4.11*).
- In all cases, a window will open where you can browse to locate the file you wish to open:


Browse to locate folder
Click on the file and it will appear under **File name**:
Open Make The Cut! Project...
Look in: MTC
Name
Date modified
Lime.mtc 8/20/2011 4:44 PM
Saving File Test.mtc 8/17/2011 7:44 AM
Cat Napping.mtc 8/17/2011 7:42 AM
Judy K Cupcake Wrapper Style 2.mtc 8/16/2011 12:10 PM
Judy K Cupcake Wrapper Style 1.mtc 8/16/2011 9:38 AM
Default Page
Preview Page: 1
Large Preview
File name: Judy K Cupcake Wrapper Style 2.mtc
Open
Files of type: Make The Cut! Projects (*.MTC)
Cancel
A preview of the file shape(s) will appear
Click here to open a window to display a larger preview of the file shape(s)
Click on **Open** and the saved file will open as a new project

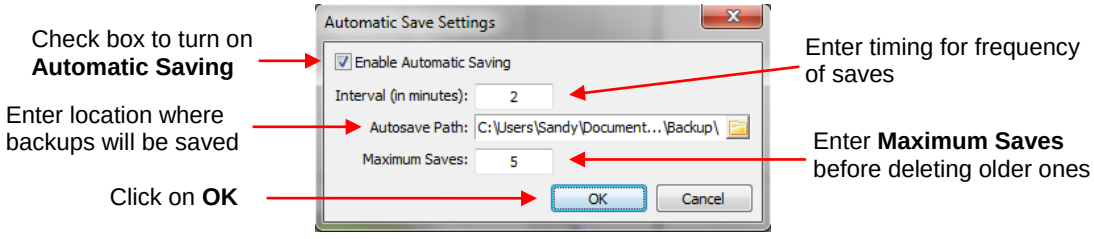
- There is also a **Basic Shapes** library available (Refer to *Section 3.08*). Plus other file formats (such as .svg, .eps, and .ai) may be imported into MTC. Refer to *Sections 4.01-4.08.*
- As you open new projects or existing files, the **Tab Bar** will show each project:


This project has been saved using the name shown.
This project has been saved using the name shown but the asterisk indicates that changes have been made since the file was last saved.
This is a new project that hasn't yet been saved.
Ribbons and Bows.mtc
Turkey.mtc *
MTCProject2

- Click on any of the tabs and that project window will be displayed. You can scroll/tab through the projects using any of the following:
  - ◊ Press **Ctrl+F6**
  - ◊ Press **Ctrl-Tab**
  - ◊ Go to **Window>Next Window**.
- All of the projects can be displayed at once, in separate windows, by choosing one of the various options under **Window** on the **Menu Bar**.

3.07 Saving MTC Files

- A file can be saved in MTC format by using any of the following:
  - ◊ Click on the **Save** icon on the **File** toolbar
  - ◊ Right click on the project tab on the **Tab** bar and select **Save** or **Save As** from the menu
  - ◊ Press **Ctrl+S**
  - ◊ Go to **File>Save** or **File>Save As.**
- If you've made changes and wish to save under a different file name, choose **File>Save As**. Name the file, choose a location, and click on **Save**.
- If you wish to save all of your open projects, go to **File>Save All** or right click on a project tab on the **Tab Bar** and select **Save All** from the menu. The various windows in which you've made changes will then open, in sequence, with the option to save the changes or not or cancel the saving process for that file.
- You can also turn on an auto-saving option by going to **Help>Advanced>Automatic Saving**. This is a very good idea when doing extensive designing or editing of files. It's not unusual for graphic programs to occasionally crash or the possibility of a sudden power outage to occur.

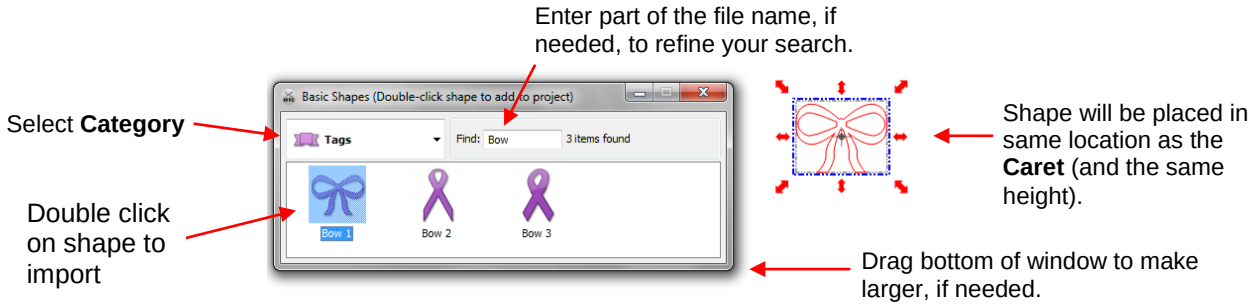

Check box to turn on **Automatic Saving**
Enter location where backups will be saved
Click on **OK**
Automatic Save Settings
Enable Automatic Saving
Interval (in minutes): 2
Autosave Path: C:\Users\Sandy\Document...\Backup\
Maximum Saves: 5
OK
Cancel
Enter timing for frequency of saves
Enter **Maximum Saves** before deleting older ones

3.08 Opening Basic Shapes

- MTC has a rich selection of basic shapes available. To access the **Basic Shapes** library use one of the following:
  - ◊ Click on the **Import Basic Shapes** icon on the **Import Toolbar** or on the **Node Mode Toolbar**
  - ◊ Press **Ctrl+Shift+B**

◊ Go to **File>Import>From Basic Shapes**

- You may then select one of the predefined categories and all shapes within that category will be displayed. Double click on a shape to import it directly onto the screen at the same height and same location as the **Caret**.


Enter part of the file name, if needed, to refine your search.
Select **Category**
Double click on shape to import
Basic Shapes (Double-click shape to add to project)
Tags
Find: Bow
3 items found
Bow 1
Bow 2
Bow 3
Shape will be placed in same location as the **Caret** (and the same height).
Drag bottom of window to make larger, if needed.

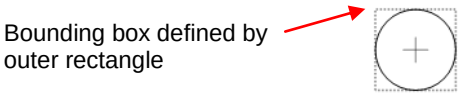
- Note that one of the categories, after you get it set up, is labeled "**Your Shapes**" which allows you to assign shapes to that category for quick access. If you have a shape that is repeatedly being used, then saving it to the **Basic Shapes** menu will save time in the future. Refer to *Section 4.10.*

- The **Basic Shapes** library can also be accessed from the **Node Mode** toolbar. Using this access, versus the ways described above, allow you to drag your mouse to freely create the height and width of the shape, as well as flip it. Refer to *Section 7.07.*

3.09 Selecting, Moving, and Deleting Shapes

Selecting

- To select a shape, click anywhere within the bounding area or bounding box, which is indicated by the rectangle appearing around the shape:



- There are several ways to select more than one shape:
  - ◊ Select the first shape and hold down the **Shift** key while clicking on additional shapes. Note that as your mouse moves over a shape, a red outline will appear. This makes selecting a shape which is overlapping other shapes, much easier to select.
  - ◊ Hold down the left mouse button and drag your mouse to form an "imaginary box" around the images you want selected. Always make sure you start clearly outside the boundaries of the images you want to select. If part of the shape is outside the selection of that shape, it won't be selected. This method of selection is referred to as a marquee-select throughout this manual.
  - ◊ If all of the shapes are on the same layer, click on the thumbnail for that layer. Refer to *Section 3.12.*
- The **Caret** will disappear while you have a shape (or shapes) selected but will reappear in the upper right corner once unselected.
- If you wish to select all of the shapes on the screen, there are several options:
  - ◊ Press **Ctrl+A**
  - ◊ Right click on the screen and choose **Select All** from the menu
  - ◊ Click on the **Select All** button on the **Magic Toolbar**.
  - ◊ Go to **Edit>Select All.**
- To scroll through shapes, forward (or in reverse), use any of the following:

- ◊ Right click on the screen and choose **Next Shape** (or choose **Previous Shape**)
- ◊ Press **Shift+Tab** (or press **Shift+Esc**)
- ◊ Go to **Edit>Next Shape** (or go to **Edit>Previous Shape**).

- To unselect all shapes, use one of the following two ways:
  - ◊ Press the **Esc** key
  - ◊ Go to **Edit>Select None**.

Moving

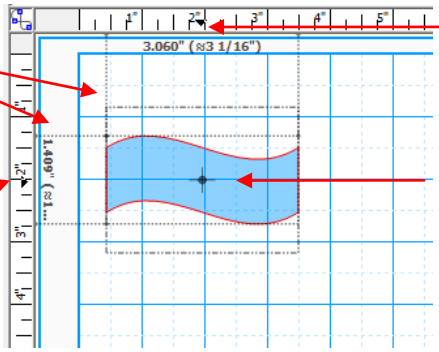
- To move a selected shape, hold down the left mouse button anywhere within the bounding area and drag to another location.
- You can also move a selected shape in small increments by pressing the arrow keys on the keyboard. Further, if you hold down the **Ctrl** key while pressing these arrows keys, the shape will move in larger increments with each keystroke.
- With a shape selected, the **Sel. Properties Bar** indicates the exact location of the top left corner of the bounding area of your shape under **X:** and **Y:** (Note that the 0,0 location is at the top left corner of the gridded part of the mat). You can enter values into either or both of the **X:** and **Y:** windows to move the shape to a new location.

X,Y location of top left corner of selected shape

- You can also use the **Rulers** to indentify where a shape is located, as well as the dimensions of the shape. In this case, small black arrows on the **Rulers** show the current location of the mouse cursor. Thus, if you want to know, for example, the center location of a shape, place your mouse on the center icon of the shape:

Vertical and horizontal guides also appear on a selected shape and can aid in aligning to other shapes

Y location of center of selected shape



X location of center of selected shape

Place mouse cursor in center of shape to determine center location of the shape along the **Rulers**

Deleting

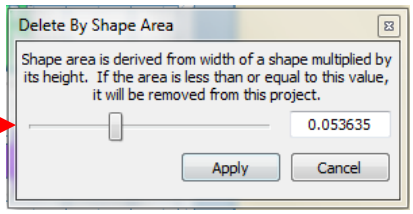
- To delete a selected shape, use any of the following options:
  - ◊ Press the **Delete** key
  - ◊ Press **Ctrl-X**
  - ◊ Right click on the screen and choose **Delete** from the menu
  - ◊ Go to **Edit>Delete**.

- To delete all of the shapes in the current project, use any of the following options:
  - ◊ Right click on the screen and choose **Delete All** from the menu

- ◊ Press **Shift+Delete**
- ◊ Go to **Edit>Delete All**.

- You can also delete a layer of shapes at one time from the **Layer Bar**. Refer to *Section 3.12.*
- To delete all of the tiny shapes not wanted in your project, use any of the following to access the **Delete by Area** option:
  - ◊ Right click on the screen and choose **Delete By Area** from the menu
  - ◊ Press **Ctrl-Shift-R**
  - ◊ Go to **Edit>Delete by Area**.
- The **Delete by Area** window allows you to select the size, by area, of objects you wish to delete from the project. As you scroll to increase the size, you will see the shapes begin to disappear from the project. When the desired shapes are removed, click on **Apply**:

Scroll to desired maximum size of objects to be deleted


Delete By Shape Area
Shape area is derived from width of a shape multiplied by its height. If the area is less than or equal to this value, it will be removed from this project.
0.053635
Apply
Cancel

3.10 Cutting, Copying, Pasting, Duplicating

Cutting to the Clipboard

- To **Cut** shapes to the clipboard, first select the shape or shapes and then use any of the following:
  - ◊ Click on the **Cut to Clipboard** icon located on the **File Toolbar**
  - ◊ Right click on the screen and select **Cut**
  - ◊ Press **Ctrl+X**
  - ◊ Go to **Edit>Cut.**

Copying to the Clipboard

- To **Copy** shapes to the clipboard, first select the shape or shapes and then use any of the following:
  - ◊ Click on the **Copy to Clipboard** icon located on the **File Toolbar**
  - ◊ Right click on the screen and select **Copy**
  - ◊ Press **Ctrl+C**
  - ◊ Go to **Edit>Copy.**
- To make multiple copies, refer to the **Duplicate** function described later in this section.

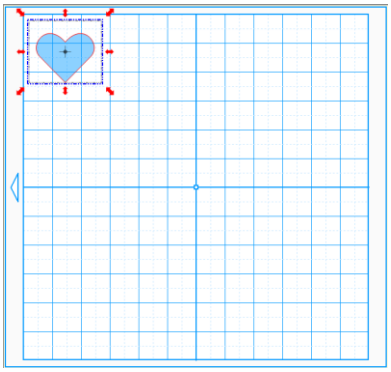
Pasting from the Clipboard

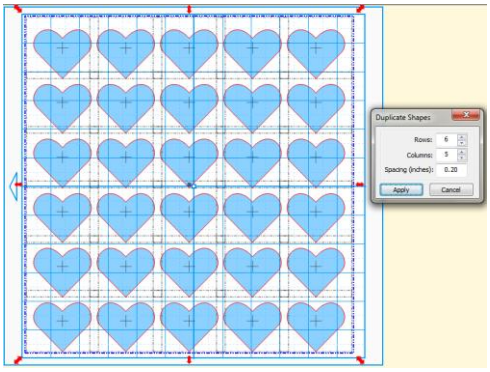
- The **Paste from Clipboard** function in MTC works a little differently from most Windows programs. When you select **Paste**, the shape on the clipboard will be placed at the **Caret**'s location and sized the same, in height, as the **Caret.** If **Paste in Place** is used instead, then the pasted shape will be the same size as the original and placed in the location of the original (at the time the **Copy** was invoked).

- To **Paste** shapes from the clipboard, use any of the following:
  - ◊ Click on the **Paste from Clipboard** icon located on the **File Toolbar**
  - ◊ Right click on the screen and select **Paste**
  - ◊ Press **Ctrl+V**
  - ◊ Go to **Edit>Paste**.
- To **Paste in Place** shapes from the clipboard, use any of the following:
  - ◊ Click on the **Paste in Place** icon located on the **File Toolbar**
  - ◊ Right click on the screen and select **Paste in Place**
  - ◊ Press **Ctrl+Shift+V**
  - ◊ Go to **Edit>Paste in Place**.
- Note that once you press **Paste in Paste**, you'll see a darkening of the original image, if you haven't moved the original image since invoking the **Copy**.

Duplicating

- The **Duplicate** function allows you to make multiple copies of a shape aligned in rows and/or columns, with the spacing you desire. To **Duplicate,** first select the shape and then use any of the following:
  - ◊ Right click on the screen and select **Duplicate**
  - ◊ Press **Ctrl+D**
  - ◊ Go to **Edit>Duplicate**.
- To fill your grid with images, select or create a custom **Virtual Mat** size that matches your cardstock (e.g. 8.5 x 11, 12 x 12 ,etc). Place the shape in the top left corner of the gridded part of mat. Then select the shape and use **Ctrl-D** (or other options) to bring up the **Duplicate Shape** window. Enter the number of duplicates in each **Row** and in each **Column**, plus the **Spacing**. Click on **OK** to accept.





Increase **Rows** and **Columns** to fill **Virtual Mat** and change **Spacing**, as desired or as needed.

- An additional application for the **Duplicate** function is presented in *Section 8.03*.

3.11 Undo/Redo

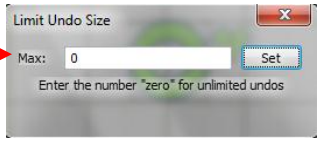
Undo

- As with most Windows applications, there is an **Undo** function to reverse the most recent steps performed. You can use any of the following to invoke the **Undo** function:
  - ◊ Click on the **Undo** icon on the **File Toolbar**

- ◊ Press **Ctrl-Z**
- ◊ Go to **Edit>Undo.**

- If you are experiencing software crashes due to memory limitations, one solution is to limit the number of **Undo** steps stored in memory. To do this, go to **Help>Advanced>Limit Undo Size**:

Enter the maximum number of **Undo** steps stored (or 0 for unlimited)



Click on **Set**

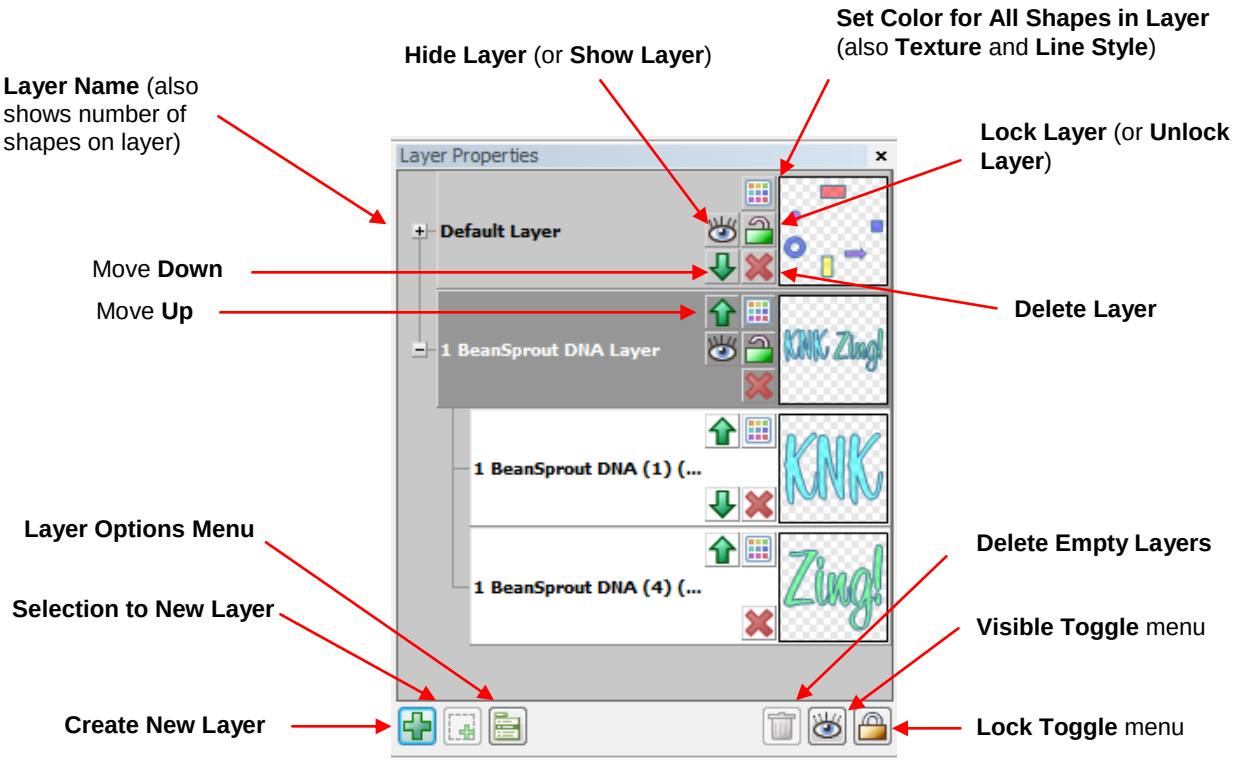
Redo

- As with most Windows applications, there is also a **Redo** function in case you **Undo** too many steps or simply change your mind. You can use any of the following to invoke the **Redo** function:
  - ◊ Click on the **Redo** icon on the **File Toolbar**
  - ◊ Press **Ctrl-Y**
  - ◊ Go to **Edit>Redo.**

3.12 Layer Bar

- The **Layer Bar** (or **Layer Properties Bar**) is used to organize and group shapes into layers for visual display and for cutting by color. It can be turned on and off under **View** on the **Menu Bar.**
- Each layer has a preview or thumbnail showing the shapes assigned to that layer. Click on that thumbnail and all shapes on that layer will be selected.
- There is a small "+" sign to the left of a layer name. Click on it and the "**+**" will turn to a "**-**" and that layer will open to reveal the sub-layers where every individual shape is assigned to its own sub-layer within that layer (refer to the screenshot on the following page).
- The **Layer Bar** also offers the following features:
  - ◊ Ability to control shape order: **Move** layers up or down the list using the green arrow icons. Shapes present in a higher layer will appear to be on top of the shapes in lower layers. This is a useful feature for displaying how your project will look when completed.
  - ◊ Ability to **Hide** and **Unhide** layers by clicking on the **Hide** icon. A **Hidden** layer will display the shapes in pale versions of their actual colors and will also prevent any movement or resizing, etc of those shapes.
  - ◊ Ability to **Lock** and **Unlock** layers by clicking on the **Lock** icon. A locked layer prevents the shapes in that layer from inadvertently being moved or resized. It also allows the shape to be displayed without an outer bounding box.
  - ◊ Ability to change the **Color**, **Texture**, and **Line Style** for all shapes assigned to a particular layer.
  - ◊ Ability to **Delete** all of the shapes assigned to a particular layer.
- When starting a new project, shapes will automatically be assigned to a **Default** layer. To move a shape to a new layer, select it and then click on the **Selection to New Layer** icon.
- Any new shapes that are created will automatically be assigned to the currently selected layer.
- Double click a layer name and you can change the name of that layer. Rest your mouse cursor over a layer name and the number of shapes in that layer will appear.
- To create a new empty layer, click on the **Create New Layer** icon.

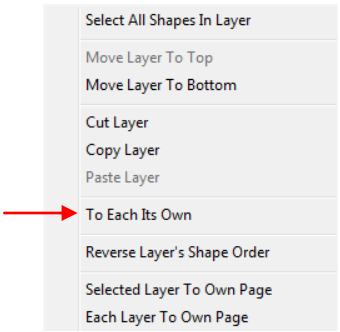
- To completely remove a layer from being displayed, but at the same time not delete the layer, move the layer to its own page, using the **Layer Options Menu** at the bottom of the **Layer Bar.**
- Individual shapes are also assigned to their own layers within a layer, as shown in the screenshot on the following page. The words “KNK” and “Zing” are individual layers within the layer which displays both words together.
- Three additional features in the bottom right section of the **Layer Bar** offer the following:
  - ◊ Click on the **Delete Empty Layers** icon to delete any layers that contain no shapes.
  - ◊ Click on the **Visible Toggle** menu to offer options to **Show All** layers, **Hide All** layers or **Toggle Visible** which will reverse the current hide/show status of all layers (i.e. hide layers currently visible and unhide layers that are currently not visible).
  - ◊ Click on the **Lock Toggle** menu to offer options to **Lock All** layers, **Unlock All** layers or **Toggle Lock** which reverses the current lock/unlock status of all layers (i.e. unlock layers currently locked and lock layers that are currently unlocked).


Set Color for All Shapes in Layer (also Texture and Line Style)
Hide Layer (or Show Layer)
Layer Name (also shows number of shapes on layer)
Lock Layer (or Unlock Layer)
Layer Properties
Default Layer
Move Down
Move Up
1 BeanSprout DNA Layer
Delete Layer
1 BeanSprout DNA (1) (...
Layer Options Menu
Delete Empty Layers
1 BeanSprout DNA (4) (...
Selection to New Layer
Visible Toggle menu
Create New Layer
Lock Toggle menu

- Right click on a **Layer Name** (or select the layer and then click on the **Layer Options Menu** icon) and the following menu will open:

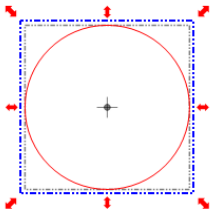
Most of these options are self-explanatory.

This option will move every shape on the selected layer to its own new layer (no longer within that selected layer)

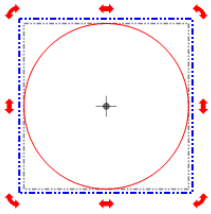


3.13 Resizing, Rotating, Slanting, and Warping

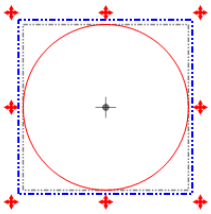
- The **Resizing**, **Rotating**, **Slanting** and **Warping** functions are presented together because all four are readily invoked on any selected shape.
- When you first select a shape, you will notice that the bounding box has double headed arrows at the four corners and in the center along each of the four sides. A double click inside the bounding area of the shape will change those icons to other choices, resulting in three different modes:



Resizing Mode



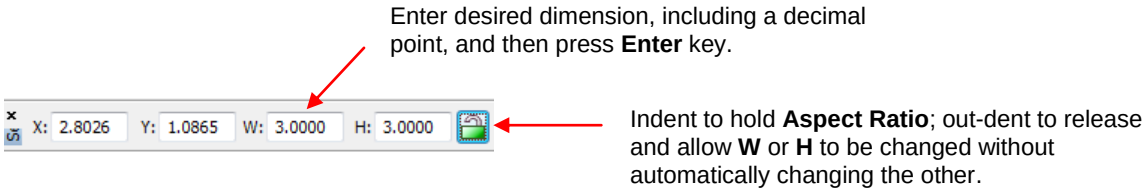
Rotating / Slanting Mode



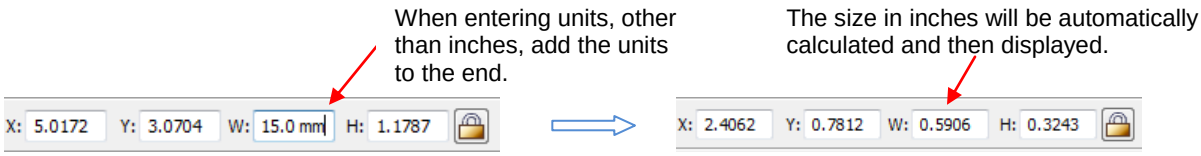
Warping Mode

Resizing

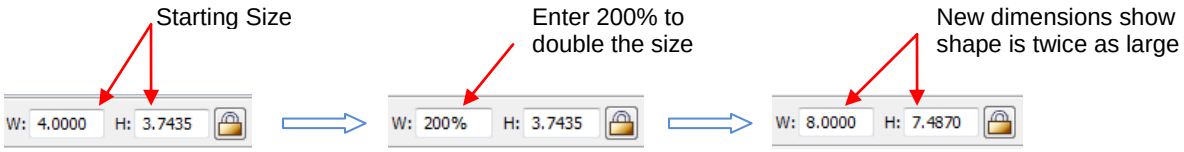
- With the shape selected, use your mouse to drag any corner of the shape to resize proportionately. Dragging the double-sided arrow on one of the four sides will allow you to resize either vertically or horizontally while leaving the other dimension constant.
- Depending on the current setting for **Snap Position** on the **Virtual Mat**, the resizing will occur in increments matching that setting. To freely resize the shape, change **Snap Position** to **No Snapping**.
- If you wish to release the aspect ratio while dragging a corner, press the **Ctrl** key while dragging. This allows the height or width of the shape to be freely changed with changing the other dimension.
- If you need to make the shape an exact size, then enter the dimension in the **W** or **H** box in the **Sel. Properties Bar.** The lock icon can be toggled depending on whether or not you want to hold the aspect ratio constant:


Enter desired dimension, including a decimal point, and then press **Enter** key.
X: 2.8026
Y: 1.0865
W: 3.0000
H: 3.0000
Indent to hold **Aspect Ratio**; out-dent to release and allow **W** or **H** to be changed without automatically changing the other.

- Dimensions can also be entered in mm or cm as long as those units are entered along with the value:

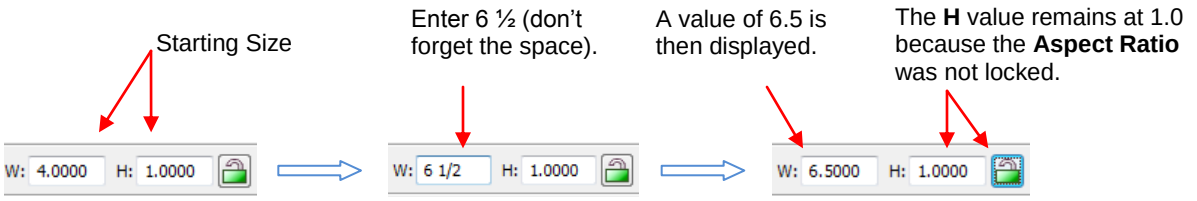

When entering units, other than inches, add the units to the end.
The size in inches will be automatically calculated and then displayed.
X: 5.0172
Y: 3.0704
W: 15.0 mm
H: 1.1787
X: 2.4062
Y: 0.7812
W: 0.5906
H: 0.3243

- Percentages can also used in the dimension settings. For example, if you want to double the size of a shape, you can enter 200%:



- Percentages can also be entered with an “R” added to calculate the reciprocal. For example, entering “200%R” will result in the size being halved. Entering 300%R will make the resulting size 1/3, etc.

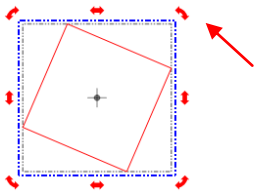
- Fractions may also be entered with a space between the number and the fraction. For example, 6.5 could be entered as 6 ½:


Starting Size
Enter 6 ½ (don't forget the space).
A value of 6.5 is then displayed.
The **H** value remains at 1.0 because the **Aspect Ratio** was not locked.
W: 4.0000 H: 1.0000
W: 6 1/2 H: 1.0000
W: 6.5000 H: 1.0000

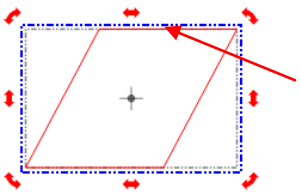
- To resize a shape containing a raster image (called a texture), hold the **Shift** key while dragging the corner. This will resize the texture as well as the shape. Also refer to *Section 3.14.*

Rotating and Slanting

- With the shape selected, dragging any of the four corners will allow free rotation of the shape. The shape will be temporarily locked at its center and will rotate around that center.
- If you hold the **Shift** key while dragging one of the four corners, the shape will be pinned in the diagonally opposite corner and will rotate around that corner. If you hold the **Ctrl** key while dragging one of the four corners, the shape will rotate in 15° increments. **Ctrl+Shift+Rotate** will rotate around the opposite corner in 15° increments.
- A selected shape can also be rotated exactly 90° clockwise, by using any of the following:
  - ◊ Click on the **Rotate 90° Clockwise** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+G**
  - ◊ Go to **Edit>Shape Magic>Rotate 90°**.
- If you drag one of the double headed arrows along a side, versus a corner, you can slant the shape instead of rotating it:



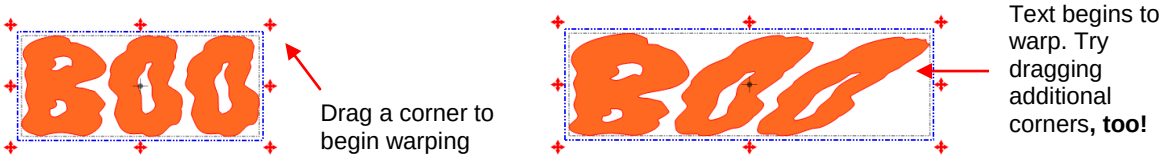
Rotated Square



Slanted Square

Warping

- In the warping mode, shapes can be transformed dramatically by dragging the "+" handles at the corners. Dragging along the sides results in the same effects as slanting above, but can be combined with the dragging of corners to create many different variations on the original shape:



- Holding the **Shift** key or the **Ctrl** Key while dragging a corner allows the warping to extend even further!

- Note: throughout this user manual, screen shots of shapes will sometimes appear without the gridlines of the virtual mat in the background and without the bounding boxes around the shape(s). This was done to make the images appear clearer and less cluttered.

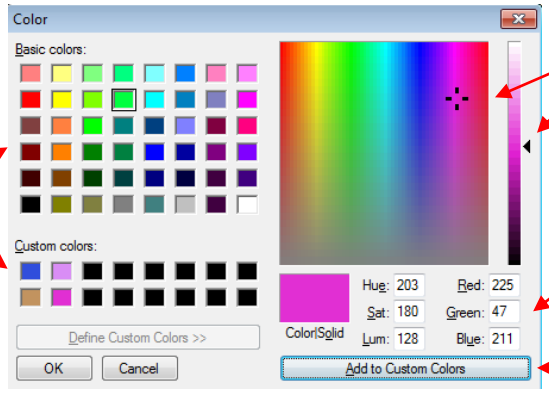
3.14 Changing Color, Texture, and Line Style

- There are three ways to access the functions for changing the **Color**, **Texture** or **Line Style** of a selected shape:
  - ◊ Right click on the screen and select **Change Color/Texture/Line**
  - ◊ On the **Layer Bar**, click on the **Set Color for All Shapes in Layer** icon.
  - ◊ Press **Ctrl+Shift+U** (Color), **Ctrl-Shift+O** (Texture), **Ctrl+Shift+Y** (Line Style)

Changing Color

- In the **Color** window, you can click on any of the **Basic** colors or create a custom color.

Option 1: Select one of the **Basic colors** or one of the **Custom colors** already created in the current project



Option 2: Click in the window and then scroll up and down to lighten or darken

Option 3: Enter the RGB values directly (or Hue, Sat, Lum)

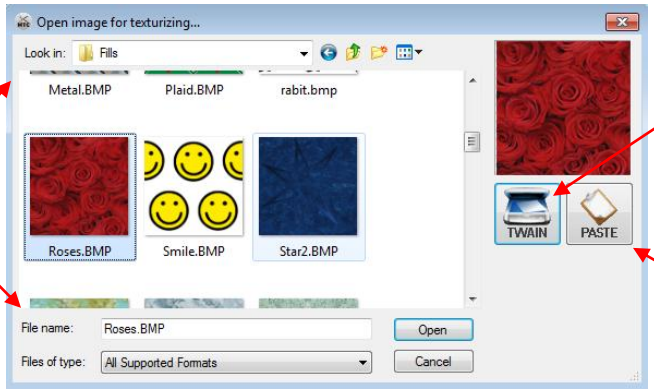
Click on **Add to Custom Colors**, if desired

- Note that a new **Custom Color** will only be saved and available in the current project.

Changing Texture

- Instead of using a solid color, you can also fill shapes with textures, which are typically raster files, such as .bmp, .jpg, .png, imported into MTC. When you access the **Change Texture** function, the window which opens will depend on whether or not you already have a texture available from another shape in your project. If you do not, then when you go to **Change Texture**, the **Open Image for Texturizing** window will open and you can browse your computer to open a texture file, scan one into MTC, or paste one from Windows Clipboard:

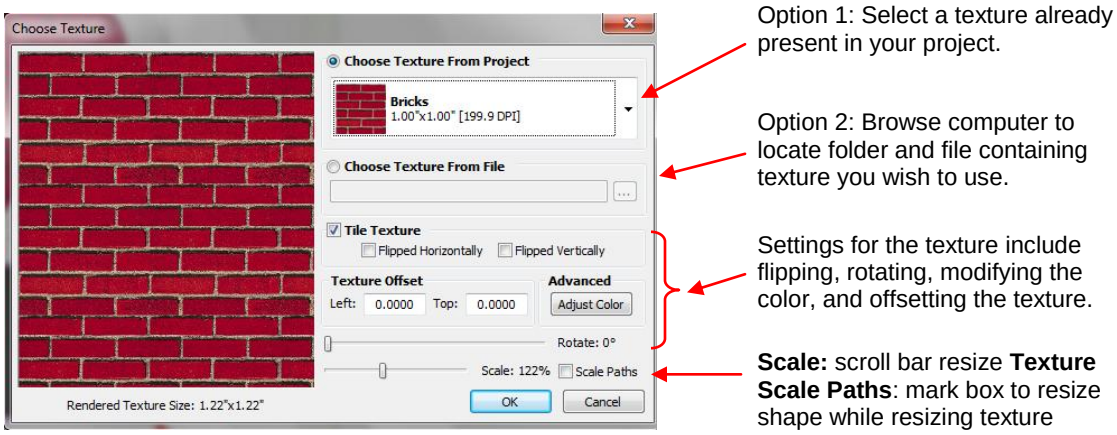
Option 1: Browse computer to locate folder and file containing texture you wish to use



Option 2: Click on **TWAIN** to scan texture image into MTC

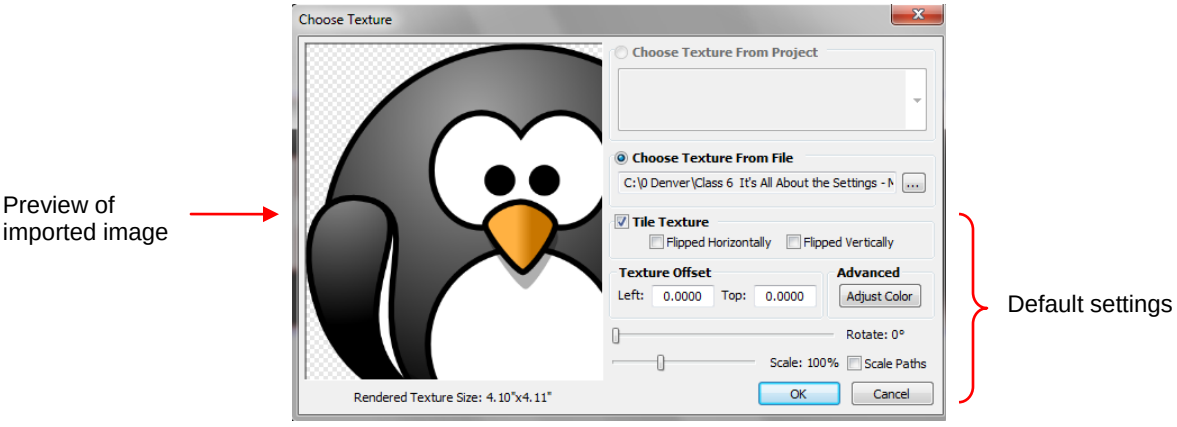
Option 3: Click on **PASTE** to paste an image from Windows Clipboard

- After importing this first texture, or if there was already a texture open in your current project, then the **Choose Texture** window opens. In this window, you have options to:
  - ◊ Tile the **Texture** (fill a shape with a modified version of the texture)
  - ◊ Vertically or horizontally flip the texture
  - ◊ Offset or move the texture within the shape
  - ◊ Adjust the color and brightness of the texture
  - ◊ Resize the texture with or without resizing the shape

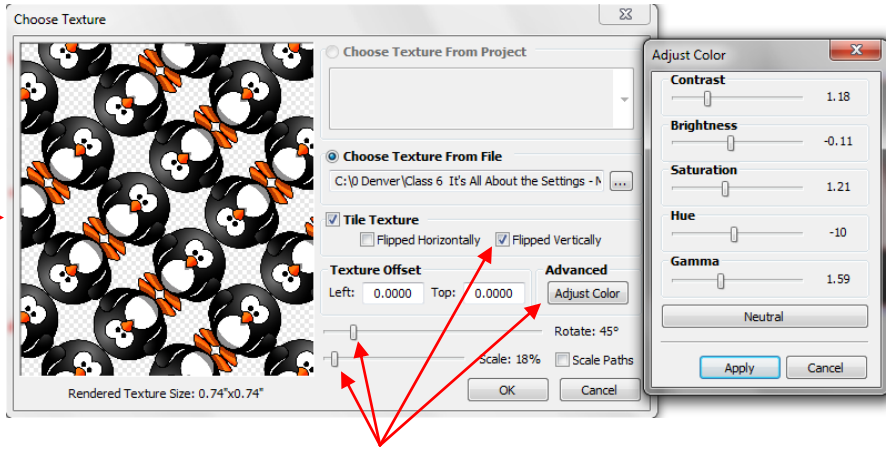

Choose Texture
Choose Texture From Project
Bricks
1.00"x1.00" [199.9 DPI]
Choose Texture From File
Tile Texture
Flipped Horizontally
Flipped Vertically
Texture Offset
Left: 0.0000
Top: 0.0000
Advanced
Adjust Color
Rotate: 0°
Scale: 122%
Scale Paths
Rendered Texture Size: 1.22"x1.22"
OK
Cancel
Option 1: Select a texture already present in your project.
Option 2: Browse computer to locate folder and file containing texture you wish to use.
Settings for the texture include flipping, rotating, modifying the color, and offsetting the texture.
Scale: scroll bar resize Texture
Scale Paths: mark box to resize shape while resizing texture

- After clicking on **OK**, your selected shape will fill with the texture chosen. Here are two examples:

- These are two examples where the shape was filled without scaling down the texture. In this next example, the text “PENGUIN” was created and then the texture imported is the following penguin image:



- To creating a repeating pattern of the penguin, at a much smaller size and with other customizations, the following changes are made in the **Change Textures** window:



Preview of how changes to settings are customizing the texture

Click on **Adjust Color** option to open this window and change the color settings, as desired

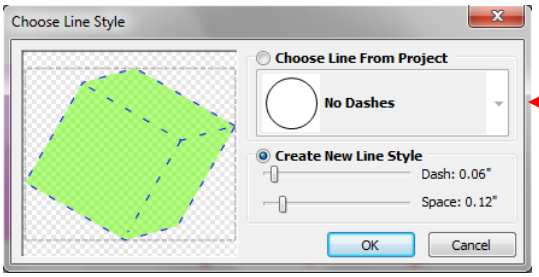
Option to **Flip Vertically** marked and image rotated 45 degrees, scaled to 18%, and color adjusted.

- After clicking on **OK**, the shape fills with the new customized texture:

- If you wish to delete the texture from a shape, right click on the shape and select **Change Color/Texture/Line** and then select **Remove Textures**.

Changing Line Style

- The **Choose Line Style** window allows you to create dashed lines instead of solid lines, as needed. Similar to **Choose Texture**, the **Choose Line Style** provides the option to create a new style or you can pick a **Line Style** already in use in your current project:



Option 1: Select a line style already present in your project

Option 2: Create a new line style by setting desired **Dash** length and **Space** between dashes

- After clicking on **OK**, your selected shape will appear with the line style you have chosen. Here are two examples:

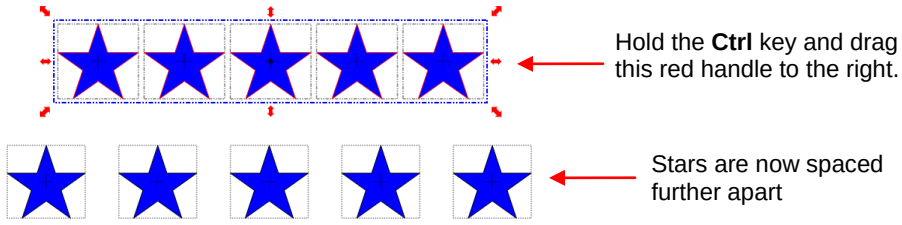
3.15 Other Shape Manipulations

Aligning

- There are seven alignment functions used to align shapes with one another. After selecting two or more shapes, these functions can be accessed using any of the following:
  - ◊ Right click on the screen and select **Align and Space>Align>**
  - ◊ Press **R, T, L, B, S, V,** or **H** (see below)
  - ◊ Go to **Edit>Align and Space>Align>.**
- **Right** (Press **R**) aligns all shapes along their right sides and positioned to the right most shape of the group.
- **Left** (Press **L**) aligns all shapes along their left sides and positioned to the left most shape of the group.
- **Top** (Press **T**) aligns all shapes along their top sides and positioned to the upper most shape of the group.
- **Bottom** (Press **B**) aligns all shapes along their bottom sides and positioned to the lower most shape of the group.
- **Vertical Center** (Press **V**) aligns all shapes vertically and positioned to the average vertical center of the group.
- **Horizontal Center** (Press **H**) aligns all shapes horizontally and positioned to the average horizontal center of the group.
- **Stack** (Press **S**) aligns all shapes to be horizontally and vertically centered with one another.

Spacing

- There are two alignment functions used to equally space shapes, either horizontally or vertically. After selecting three or more shapes, these functions can be accessed using any of the following:
  - ◊ Right click on the screen and select **Align and Space>Space>Vertical** (or **Horizontal**)
  - ◊ Press **[** or **]** (see below)
  - ◊ Go to **Edit>Align and Space>Space>Vertical** (or **Horizontal**).
- **Vertically** (Press **[**) equally spaces shapes between the uppermost and bottommost shapes in the selection.
- **Horizontally** (Press **]**) equally spaces shapes between the leftmost and the rightmost shapes in the selection.
- Another way to increase or decrease the spacing between a selected group of shapes, is to hold the **Ctrl** key and drag the middle:



- This same method can be used for vertical spacing, as well. The shapes also do not need to be the same. You could equally space, for example, a star, a letter “B”, and a straight line.

Mirroring and Flipping

- To horizontally mirror a shape, select it and then use one of the following:
  - ◊ Click on the **Mirror** icon on the **Magic Toolbar**
  - ◊ Right click on the screen and select **Shape Magic>Mirror**

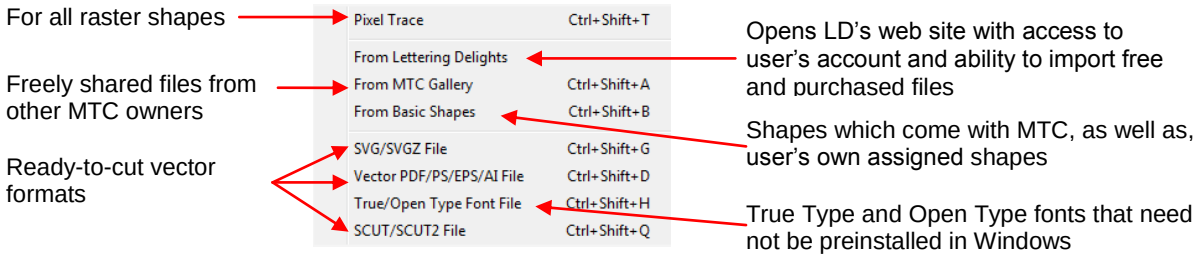
- Press **Ctrl+M**
- Go to **Edit>Shape Magic>Mirror.**

- To vertically flip a shape, select it and then use one of the following::
  - Click on the **Flip** icon on the **Magic Toolbar**
  - Right click on the screen and select Shape Magic>Flip
  - Press **Ctrl+F**
  - Go to **Edit>Shape Magic>Flip.**

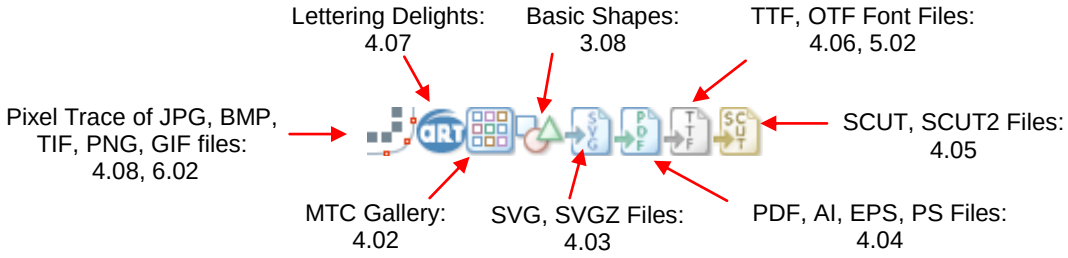
4. Importing and Exporting

4.01 Accessing the Import Options

- Go to **File>Import** and select from one of the available import options. Note the shortcut keys for the various file types:


For all raster shapes
Freely shared files from other MTC owners
Ready-to-cut vector formats
Pixel Trace Ctrl+Shift+T
From Lettering Delights
From MTC Gallery Ctrl+Shift+A
From Basic Shapes Ctrl+Shift+B
SVG/SVGZ File Ctrl+Shift+G
Vector PDF/PS/EPS/AI File Ctrl+Shift+D
True/Open Type Font File Ctrl+Shift+H
SCUT/SCUT2 File Ctrl+Shift+Q
Opens LD's web site with access to user's account and ability to import free and purchased files
Shapes which come with MTC, as well as, user's own assigned shapes
True Type and Open Type fonts that need not be preinstalled in Windows

- Alternatively, click on the appropriate icon on the **Import Bar.** Note the sections of the user manual included with each label:

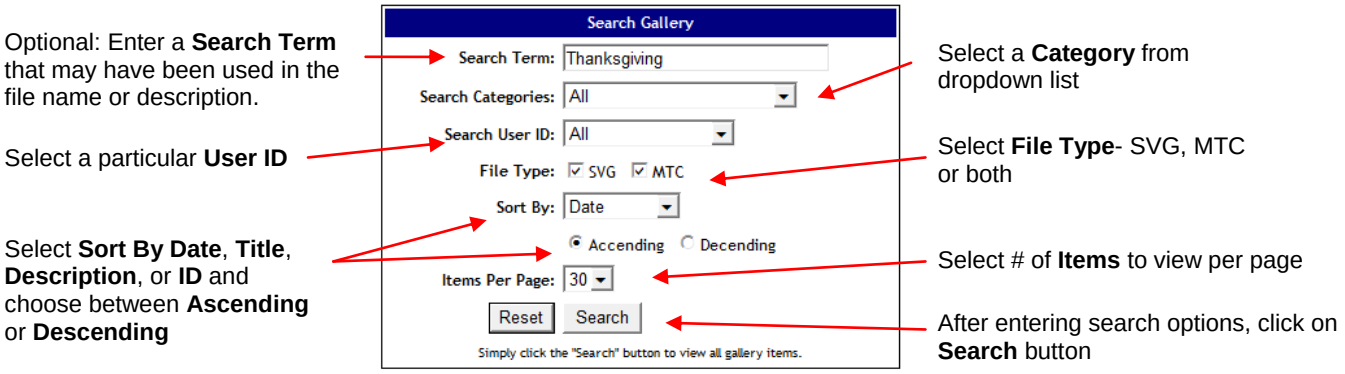

Lettering Delights: 4.07
Basic Shapes: 3.08
TTF, OTF Font Files: 4.06, 5.02
Pixel Trace of JPG, BMP, TIF, PNG, GIF files: 4.08, 6.02
SCUT, SCUT2 Files: 4.05
MTC Gallery: 4.02
SVG, SVGZ Files: 4.03
PDF, AI, EPS, PS Files: 4.04

- Alternatively, right click on the project tab on the **Tab Bar** and select **Import** from the menu. This is the same as going to **File>Import.**

4.02 Importing from the Online MTC Gallery

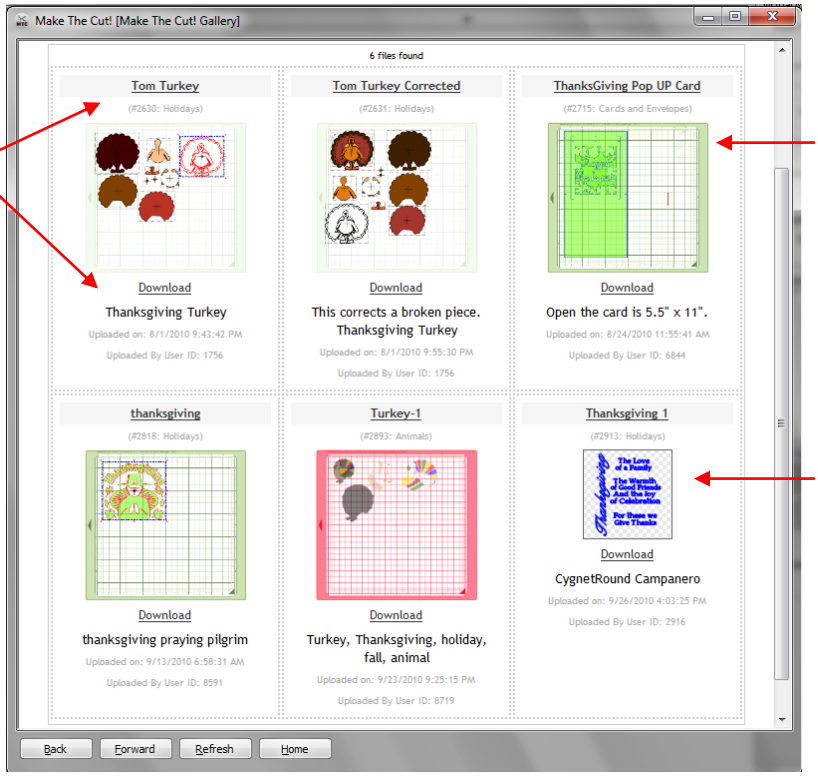
Video

- The **MTC Gallery** can be accessed using the three methods shown above or by going to **Help>Free SVG's and MTC's.** When selected, the following window opens and you can choose from thousands of freely shared files from other MTC owners:


Optional: Enter a Search Term that may have been used in the file name or description.
Select a particular User ID
Select Sort By Date, Title, Description, or ID and choose between Ascending or Descending
Search Gallery
Search Term: Thanksgiving
Search Categories: All
Search User ID: All
File Type: SVG MTC
Sort By: Date
Accending Decending
Items Per Page: 30
Reset Search
Simply click the "Search" button to view all gallery items.
Select a Category from dropdown list
Select File Type- SVG, MTC or both
Select # of Items to view per page
After entering search options, click on Search button

- Upon clicking on **Search**, thumbnails of the images identified in the search will appear:

Each thumbnail indicates the **File Name**, **Category**, **Description**, **User ID**, and **Uploaded Date**.

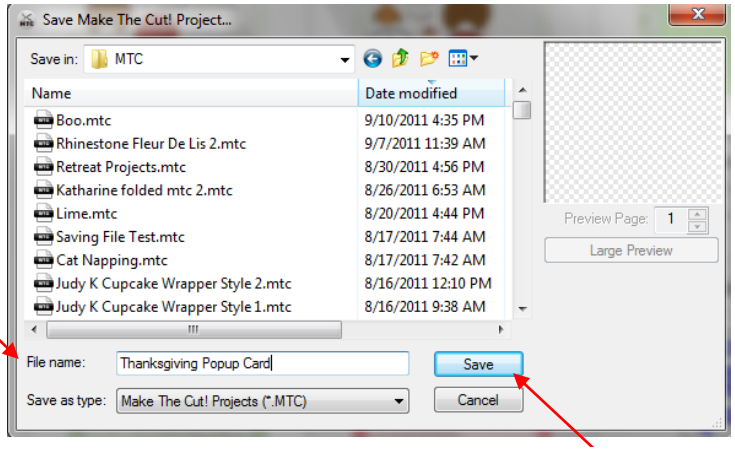


MTC uploaded files appear with a **Virtual Mat** background.

SVG uploaded files appear without the **Virtual Mat** background.

- If just the shape was uploaded, then clicking on **Download** will immediately import the shape at the current location of the **Caret**.
- If the file was uploaded as a **Project**, then clicking on **Download** will open a window where you can browse to a folder on your computer and then save the file in .MTC format. Once the file is saved, that file will automatically open, along with the **Virtual Mat** specifications used by the person who uploaded the file.

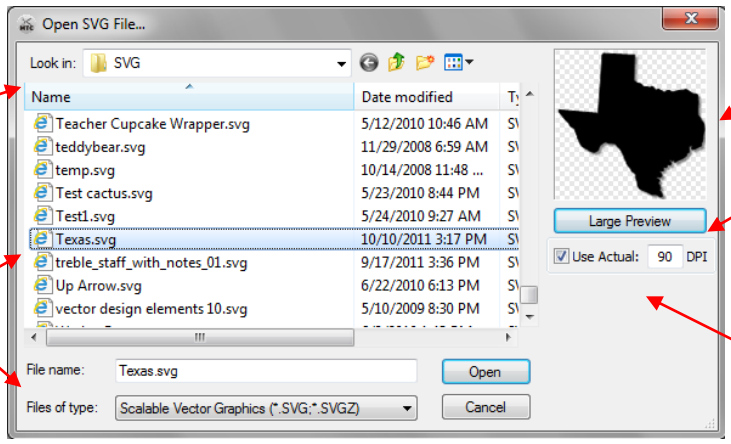
Enter a **File Name** and choose a location on your computer to save the imported MTC file.


Save Make The Cut! Project...
Save in: MTC
Name
Date modified
Boo.mtc 9/10/2011 4:35 PM
Rhinestone Fleur De Lis 2.mtc 9/7/2011 11:39 AM
Retreat Projects.mtc 8/30/2011 4:56 PM
Katharine folded mtc 2.mtc 8/26/2011 6:53 AM
Lime.mtc 8/20/2011 4:44 PM
Saving File Test.mtc 8/17/2011 7:44 AM
Cat Napping.mtc 8/17/2011 7:42 AM
Judy K Cupcake Wrapper Style 2.mtc 8/16/2011 12:10 PM
Judy K Cupcake Wrapper Style 1.mtc 8/16/2011 9:38 AM
Preview Page: 1
Large Preview
File name: Thanksgiving Popup Card
Save
Save as type: Make The Cut! Projects (*.MTC)
Cancel

Click on **Save** and file will be saved and then automatically opened.

4.03 Importing SVG, SVGZ from Your Computer

- If the selected file format is **SVG** or **SVGZ**, then importing the graphic will bring the shape into MTC to be resized, edited, cut, etc. Similar to opening files, a window will pop open, allowing you to browse your computer to locate a subfolder and select the file you wish to import. With SVG you can click on **Large Preview** to open a window displaying a much larger view than the thumbnail preview:



Browse to locate folder containing the file.

Click on the file and it will appear under **File name**:

Preview of the file to be imported

Click here to open a window to display a large preview of the file shape(s).

Mark **Use Actual** if you want the SVG imported in a particular size. Otherwise the SVG will be imported at the same height as the **Caret** on the screen.

- The **Use Actual** setting controls the dimensions of the shapes that are imported as SVG files. If left unchecked, the shape will be sized according to the height of the Caret. If the box is checked, then the dimensions will be based on the DPI you enter:

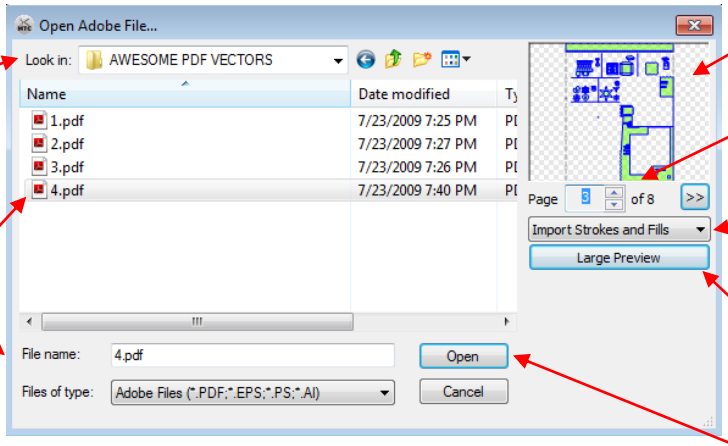
SVG was imported without checking the **Use Actual** box, thus sized at the same height as the **Caret.**

SVG was imported after checking the **Use Actual** box, thus sized according to the DPI value entered

- Different programs use different DPI's when exporting as SVG. Thus, to size the shapes the same as the program where the SVG was created, you need to know which program was used. For example, if the SVG file was created in Inkscape, use 90 DPI. If the SVG file was created in either Adobe Illustrator or KNK Studio, use 72 DPI. While knowing this setting isn't relevant in most files, such as the one shown above, there could be some files where it is very important, such as an envelope template for a certain sized card or a cupcake wrapper template.

4.04 Importing AI, EPS, PS, PDF

- If the selected file format is one of the following vector formats: **AI, EPS, PS, PDF** (vector only), then importing the graphic works the same as opening MTC files or importing SVG files. There are a few different import options:



Browse to locate folder containing the file.

Click on the file and it will appear under **File name**:

Preview of the file to be imported

Select page number if it's a multi-page file

Option for Importing **Strokes Only**, **Fills Only** or **Strokes and Fills**.

Click here to open a window to display a large preview of the file shape(s).

Click on **Open** and the saved file will open as a new project.

- Note that when the file has multiple pages (such as some PDF vector files), the user should choose which page to import. Click on **Large Preview** to better see the individual shapes or use Adobe Reader to view the pages in the same way you would view any PDF file.

- MTC will only import AI files that are Version 9 or newer. Thus, if an AI fails to import, that is the most likely issue. From some programs, such as Funtime, it will be necessary to save in a different format, such as PDF or EPS.
- A PDF created from a raster image will not import into MTC. In the preview window will be a message saying "**Nothing to Preview."** In these situations, open the PDF files in Adobe Reader, right click on the Image and select **Copy Image** or press **Ctrl+C**. Then use **Pixel Trace** to import the image into MTC. Refer to *Chapter 6.*
- There is also an **Import Strokes and Fills** menu with three options to **Import Strokes Only, Import Fills Only** or **Import Strokes and Fills**. Select the latter and then note if you have unwanted lines in your image. If so, then try one of the other choices, such as **Import Strokes Only**.

4.05 Importing SCUT, SCUT2

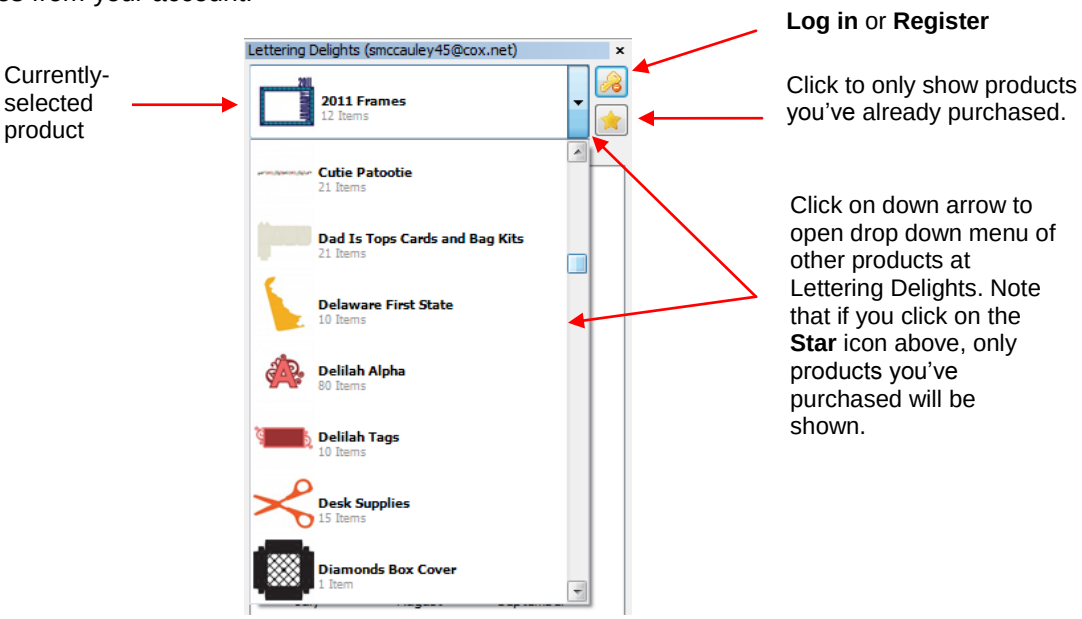
- Files created in Sure Cuts a Lot (SCAL) are saved in the format SCUT or SCUT2, depending on the version of SCAL used. These formats are also imported using the same methods as described for SVG. There are no special settings. Just locate the file on your computer, select it, and click on **Open.**

4.06 Importing TTF, OTF Font Files

- If the selected file format is **TTF** or **OTF**, then the font file will be added to the installed fonts list and be available for creating text shapes. The font does not need to be installed first in Windows, nor does it need to be re-opened in MTC after the file is opened again on the current user's computer or any other computer. More details are covered in *Section 5.02.*

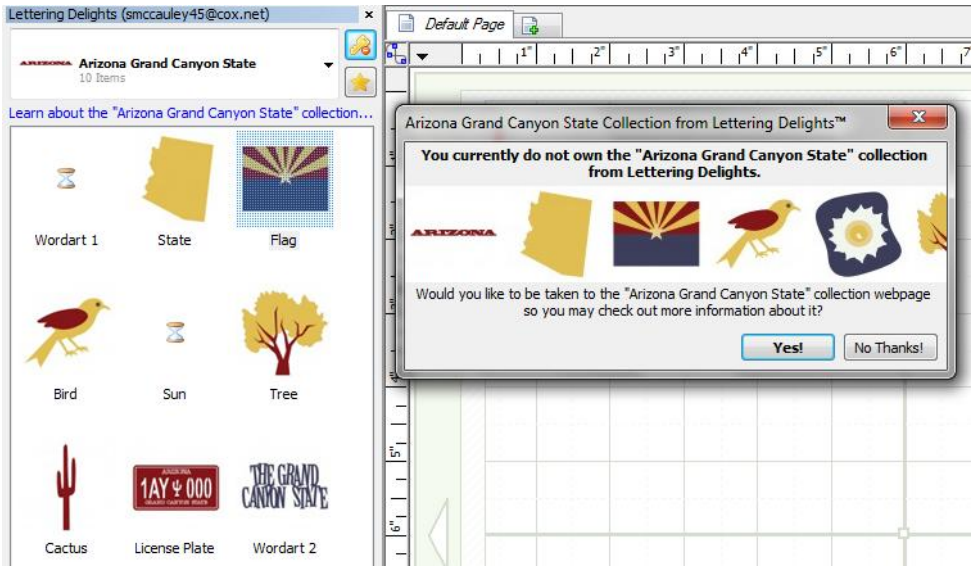
4.07 Importing from Lettering Delights

- If the **Lettering Delights** option is chosen, then the **Lettering Delights** window will open at the left side of the screen.
- You may log into the following web site: http://www.letteringdelights.com/ and purchase new cutting files or load existing files from your account.


Currently-selected product
Lettering Delights (smccauley45@cox.net)
2011 Frames
12 Items
Cutie Patootie
21 Items
Dad Is Tops Cards and Bag Kits
21 Items
Delaware First State
10 Items
Delilah Alpha
80 Items
Delilah Tags
10 Items
Desk Supplies
15 Items
Diamonds Box Cover
1 Item
Log in or Register
Click to only show products you've already purchased.
Click on down arrow to open drop down menu of other products at Lettering Delights. Note that if you click on the Star icon above, only products you've purchased will be shown.

- Once you have selected a Lettering Delights product, double click on any image and a window will open where you can choose to go to the Lettering Delights' web site to purchase this particular product. The shapes in that product package will then be available to download directly into MTC in the future, when you log into your account.

- The following example shows a collection of clipart called “Arizona Grand Canyon State” that has been found at the Lettering Delights site, but has not yet been purchased. You can see the images contained in this collection and, upon double clicking any of the images, a window will open:


Lettering Delights (smccauley45@cox.net)
Arizona Grand Canyon State
10 Items
Learn about the "Arizona Grand Canyon State" collection...
Wordart 1
State
Flag
Bird
Sun
Tree
Cactus
License Plate
Wordart 2
Default Page
Arizona Grand Canyon State Collection from Lettering Delights™
You currently do not own the "Arizona Grand Canyon State" collection from Lettering Delights.
Would you like to be taken to the "Arizona Grand Canyon State" collection webpage so you may check out more information about it?
Yes!
No Thanks!

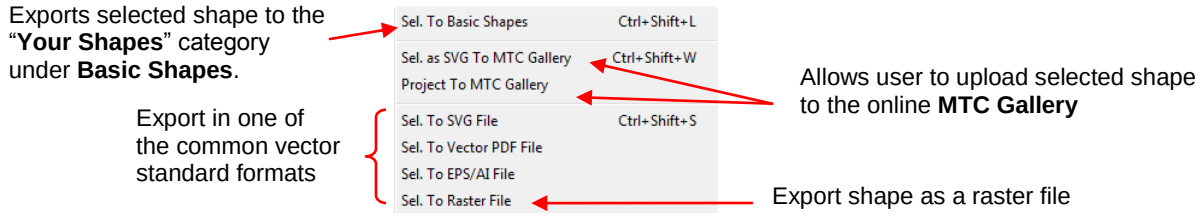
- If you answer **Yes,** your Internet browser will open and you will be taken to this link: http://www.letteringdelights.com/clipart:arizona_grand_canyon_state-10057.html where you can again view the images in this collection, browse projects made with this collection, link to related collections, and, of course, purchase this collection.

4.08 Importing Raster Files (JPG, BMP, PNG, etc)

- If the selected file format is a raster (e.g., JPG, BMP, TIF, PNG, or GIF), then the **Pixel Trace** option is used to import the graphic and vectorize selected portions or all of the shape. Refer to *Chapter 6 Tracing*.
- Raster images may also be copied and pasted into the **Pixel Trace** window directly from Windows Explorer.
- If the raster file is only going to be used to fill a shape with the image (also referred to as adding a **Texture**), then refer to *Section 3.14.*

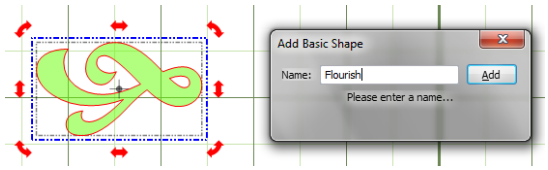
4.09 Accessing the Export Options

- One can export a selected shape or group of shapes in any of the following ways:
  - ◊ Go to **File>Export** and select from one of the available export options
  - ◊ Right click on the screen and select **Export**
  - ◊ Right click on the project tab on the **Tab Bar** and select **Export** from the menu. This is the same as going to **File>Export.**
  - ◊ Use any one of three shortcut keys to bring up the available **Export** choices. Refer to the following screenshot.


Exports selected shape to the "Your Shapes" category under Basic Shapes.
Sel. To Basic Shapes Ctrl+Shift+L
Sel. as SVG To MTC Gallery Ctrl+Shift+W
Project To MTC Gallery
Allows user to upload selected shape to the online MTC Gallery
Export in one of the common vector standard formats
Sel. To SVG File Ctrl+Shift+S
Sel. To Vector PDF File
Sel. To EPS/AI File
Sel. To Raster File
Export shape as a raster file

4.10 Exporting to Basic Shapes

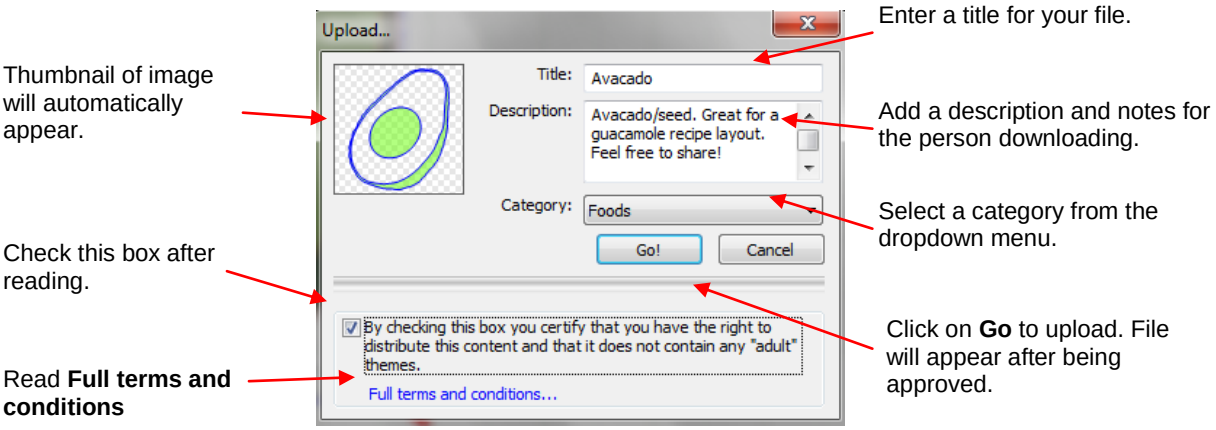
- When exporting a file to the **Basic Shapes** library, a popup window will appear asking for the file to be named. Enter a descriptive name for the shape and then click on **Add.** That shape will be added to the category – "**Your Shapes**".



- As you build **"Your Shapes"** library, you may want to back it up in the event you have a hard drive crash or if you want to load **"Your Shapes"** to other computers you own. To access this function, go to **Help>Advanced>Backup and Restore "Your Shapes"**. You will find the options to either **Backup** or **Restore**.

4.11 Exporting to MTC Gallery

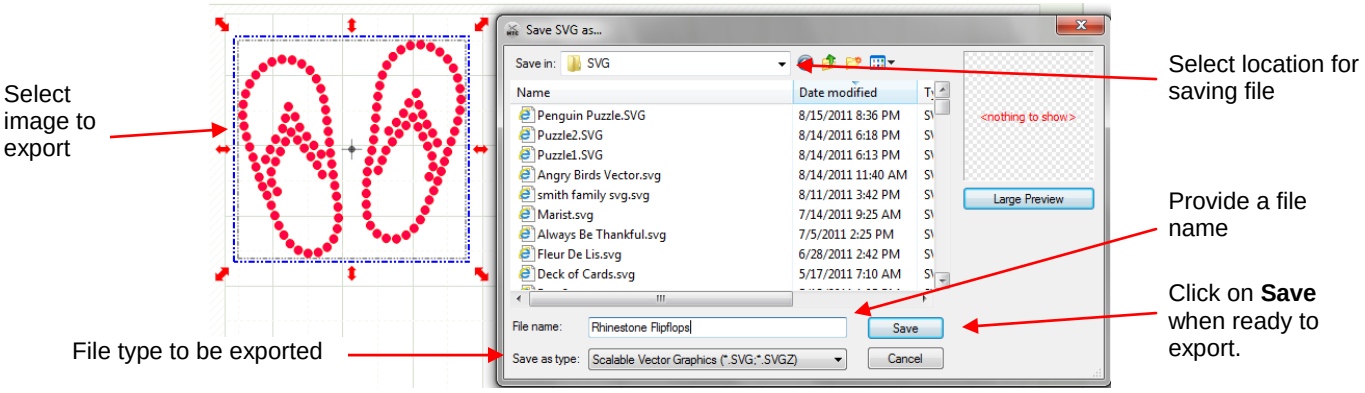
- When exporting to the **MTC Gallery**, you have a choice between exporting as an SVG or as an MTC. To export just a selected shape from MTC to the **Gallery**, select the file and then choose the **Sel. as SVG to MTC Gallery** option. The following window will open where you can then enter information and select a category:


Thumbnail of image will automatically appear.
Upload...
Title: Avacado
Description: Avacado/seed. Great for a guacamole recipe layout. Feel free to share!
Category: Foods
Go!
Cancel
By checking this box you certify that you have the right to distribute this content and that it does not contain any "adult" themes.
Full terms and conditions...
Enter a title for your file.
Add a description and notes for the person downloading.
Select a category from the dropdown menu.
Check this box after reading.
Click on Go to upload. File will appear after being approved.
Read Full terms and conditions

- When another MTC owner imports the file, it will automatically import at the height and location of the **Caret**. If necessary, the designed size could be mentioned in the **Description**. For a file such as this avocado, it's not necessary. But for something like a cupcake wrapper, it could be important for the user to know the original design dimensions.
- Another alternative, which preserves the original dimensions of all shapes in the file, is available. From the **Export** options, choose **Sel. as Project to MTC Gallery**. An identical window appears, but the upload will include everything in the file, including the same **Virtual Mat** settings, **Notes, Layers,** etc.

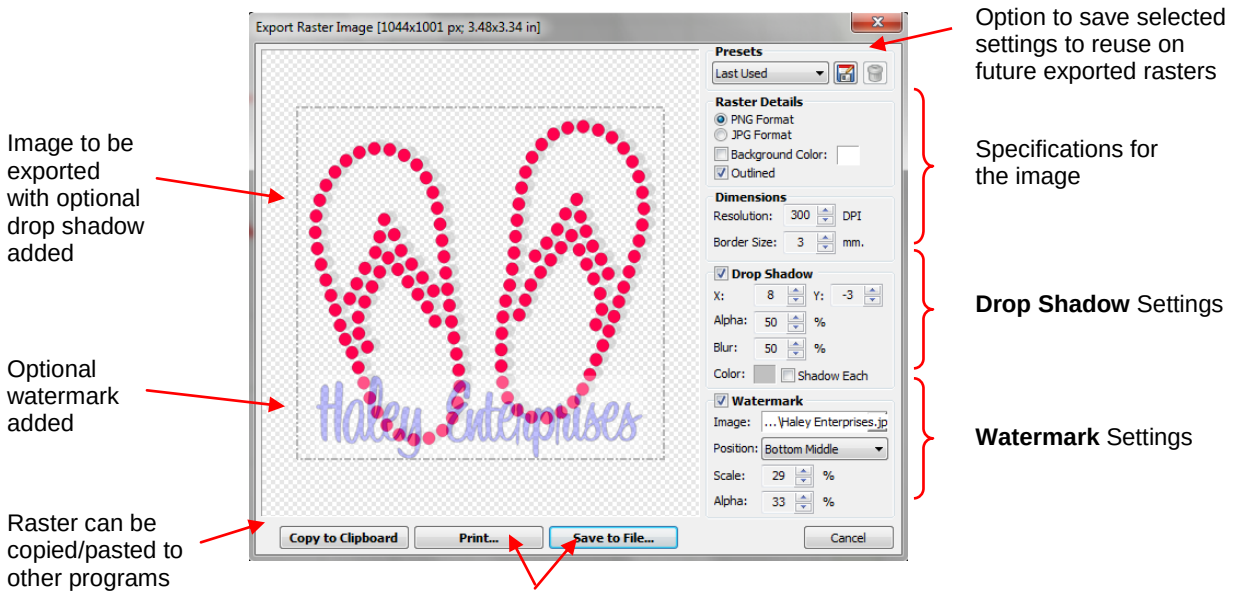
4.12 Exporting as EPS/AI, SVG, or PDF

- For each of these formats, first select the shape or shapes and then select the **Export** option from the dropdown menu (right click on selected image for **Export** option). A window will open:

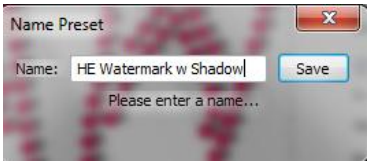

Select image to export
Save SVG as...
Save in: SVG
Name
Date modified
Penguin Puzzle.SVG 8/15/2011 8:36 PM
Puzzle2.SVG 8/14/2011 6:18 PM
Puzzle1.SVG 8/14/2011 6:13 PM
Angry Birds Vector.svg 8/14/2011 11:40 AM
smith family svg.svg 8/11/2011 3:42 PM
Marist.svg 7/14/2011 9:25 AM
Always Be Thankful.svg 7/5/2011 2:25 PM
Fleur De Lis.svg 6/28/2011 2:42 PM
Deck of Cards.svg 5/17/2011 7:10 AM
<nothing to show>
Large Preview
File name: Rhinestone Flipflops
Save as type: Scalable Vector Graphics (*.SVG;*.SVGZ)
Save
Cancel
Select location for saving file
Provide a file name
Click on Save when ready to export.
File type to be exported

4.13 Exporting as a Raster File

- There are many reasons why you might want to export your file as a raster. For example: (1) The image could be posted on a web site or blog, (2) The image could be shared with a friend or a customer, (3) The image could be used in a digital scrapbooking program.
- Select the image and right click to bring up the menu to select **Export** and then select the last choice, **Sel. to Raster File**. This window will open:



- Note the many settings available for the raster export. If the image is to be imported into a layering program (such as Photoshop or a digital scrapbooking program), then PNG will be the preferred format. For commercial applications, you may wish to add a watermark to protect your image from being copied. A drop shadow can be added to give your image dimension. Experiment with these settings and if you find certain ones that you wish to use repeatedly, click on the option at the top to save the settings and a window will open where the settings can be saved with a name you provide:

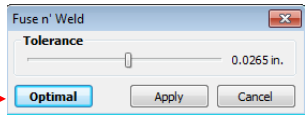


4.14 Using Windows Copy/Paste

Adobe Illustrator

- In Adobe Illustrator, select the shape or shapes and use **Edit>Copy** or **Ctrl+C** to copy the images to the Windows clipboard. In MTC, use **Paste in Place** (**Ctrl+Shift+V** or the icon on the **File Toolbar**) to import the shapes at the original size. Note the fill and stroke colors assigned in Illustrator will not be brought into MTC.
- On some shapes, duplicates can result during the conversion from AI to MTC. The quickest way to eliminate those duplicates is to apply the **Fuse n' Weld** function. It isn't necessary to know which shapes might be duplicated. Just select all of the imported shapes and click on the **Advanced** icon on the **Shape Magic Toolbar,** and select **Fuse n' Weld**. A small window will open. It's not necessary to adjust any settings in this case. Instead, click on the **Optimal** button. The window will close and any duplicate shapes will be fused into a single version:

Click on **Optimal**



- If you have any problems using the Windows Copy/Paste method, try importing your saved AI files into MTC. Refer to *Section 4.04.*

Inkscape

- In Inkscape, select the shape or shapes and use **Edit>Copy** or **Ctrl+C** to copy the images to the Windows clipboard. In MTC, use **Paste in Place** (**Ctrl+Shift+V** or the icon on the **File Toolbar**) to import the shapes at the original size. Note the fill and stroke colors assigned in Inkscape will not be brought into MTC.
- Similar to AI files, duplicates can occur with some shapes during the copy/paste process. Apply the Fuse n' Weld noted above to reduce any duplicates into single occurrences.
- If you have any problems using the Windows Copy/Paste method, try importing your saved SVG files into MTC. Refer to *Section 4.03.*

KNK Studio/ ACS Studio

Video

- In KNK or ACS Studio, select the shape or shapes and use **Ctrl+C** or **Edit>Copy** to copy the images to the Windows Clipboard. In MTC, use **Paste in Place** (**Ctrl+Shift+V** or the icon on the **File Toolbar**) to import the KNK shapes at the original size. The **Fill** color in KNK Studio will also be maintained.

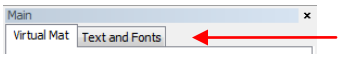
- If the dimensions of the imported shapes are larger than the same dimensions shown in KNK Studio (which will happen with rhinestone patterns, for example), invoke the **Flatten Paths** command and the dimensions should then match. The shapes have not changed sizes during the conversion from KNK Studio to MTC; this is simply a correction to remove the Bezier control points. Refer to *Flatten Paths* under *Section 7.04.*

- The **Notes** function in KNK/ACS Studio will also allow text to be copied and pasted to the **Notes Window** in MTC.
- If any of the VEF and WFN fonts specific to KNK/ACS Studio have been used to create text, that text may also be copied and pasted from KNK/ACS Studio to MTC even though those particular fonts cannot be opened in MTC.
- If you have any problems using the Windows Copy/Paste method, export your files from KNK Studio in either EPS or PDF format to import into MTC. Refer to *Section 4.04.*
- To export from MTC to KNK/ACS Studio, select the shape(s) and use either the EPS or PDF export functions described in Section 4.1.

5. Working with Text

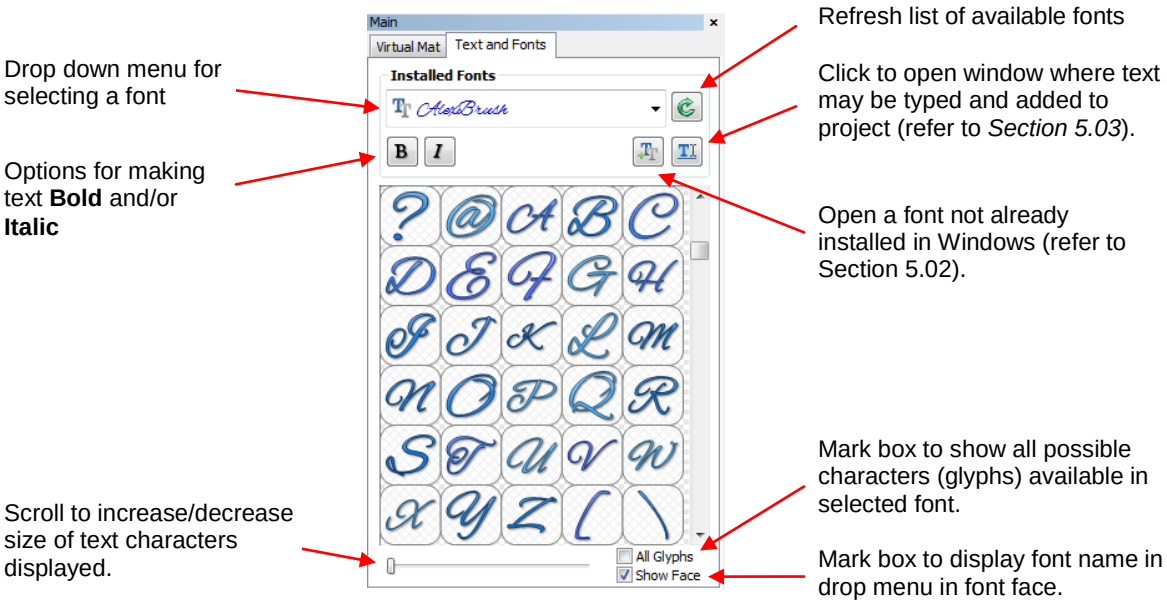
5.01 The Text and Fonts Tab

- On the **Main Bar** in MTC, you will find a tab called **Text and Fonts**:



Click on this tab to access **Text and Fonts**

- The **Text and Fonts** tab is used for:
  - ◊ Browsing and selecting which font to use for creating a text shape. Note that marking the **Show Face** option will display the font names in their font type.
  - ◊ Browsing all of the characters (glyphs) available in any given font
  - ◊ Opening/importing new fonts
  - ◊ Accessing the window for typing text
  - ◊ Choosing to make text bold or italic.


Drop down menu for selecting a font
Options for making text **Bold** and/or **Italic**
Scroll to increase/decrease size of text characters displayed.
Refresh list of available fonts
Click to open window where text may be typed and added to project (refer to *Section 5.03*).
Open a font not already installed in Windows (refer to Section 5.02).
Mark box to show all possible characters (glyphs) available in selected font.
Mark box to display font name in drop menu in font face.
Main
Virtual Mat
Text and Fonts
Installed Fonts
AlexBrush
B
I
All Glyphs
Show Face

- Fonts appearing in black in the dropdown menu are installed in Windows. Fonts appearing in blue have been opened into MTC during the current session. Fonts appearing in green have been opened during this session or previously opened, with the option marked to permanently install in MTC. (Refer to *Section 5.02*.)
- You can click on any font in the dropdown menu and then use your mouse scroll button to scroll through all of the fonts in the menu. The characters will then change as you scroll, thus possibly making it easier to decide on a font to use.
- Some fonts will change significantly if the **Bold** option is selected, so be aware of that possibility.

5.02 Opening Font Files

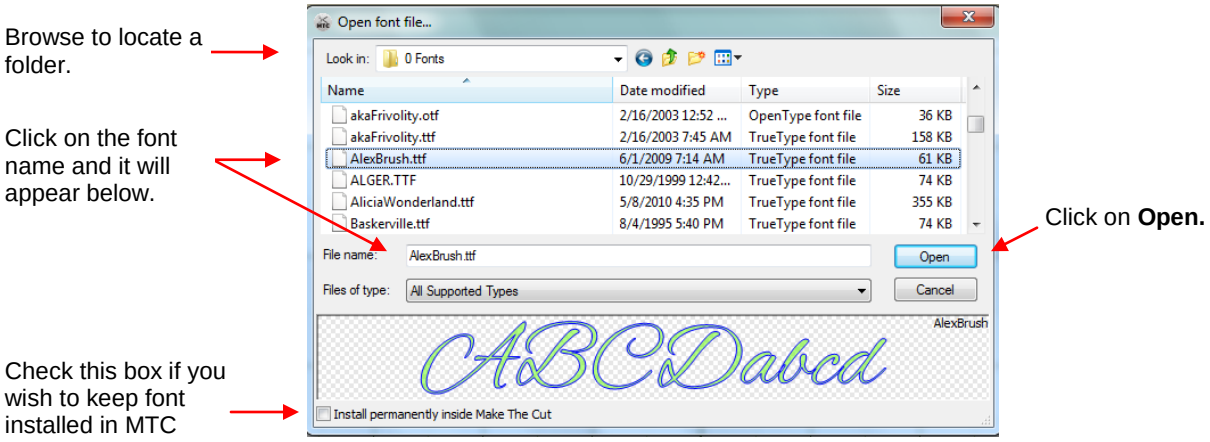
Video

- True type (.TTF) and open type (.OTF) fonts which are already installed on your computer are ready to be used in MTC. However, unlike most other Windows applications, uninstalled fonts do not need to be pre-

installed in Windows in order to be used. They can be opened directly in MTC, as easily as importing other vector files.

- A font can be opened in MTC using any of the following ways:
  - ◊ Click on the **Import TTF/OTF** icon on the **Import Toolbar**:
  - ◊ Click on the **Add Font from TTF File** icon on the **Font and Text** tab of the **Main Bar**:
  - ◊ Press **Ctrl+Shift+H**
  - ◊ Go to **File>Import>True/Open Type Font File.**

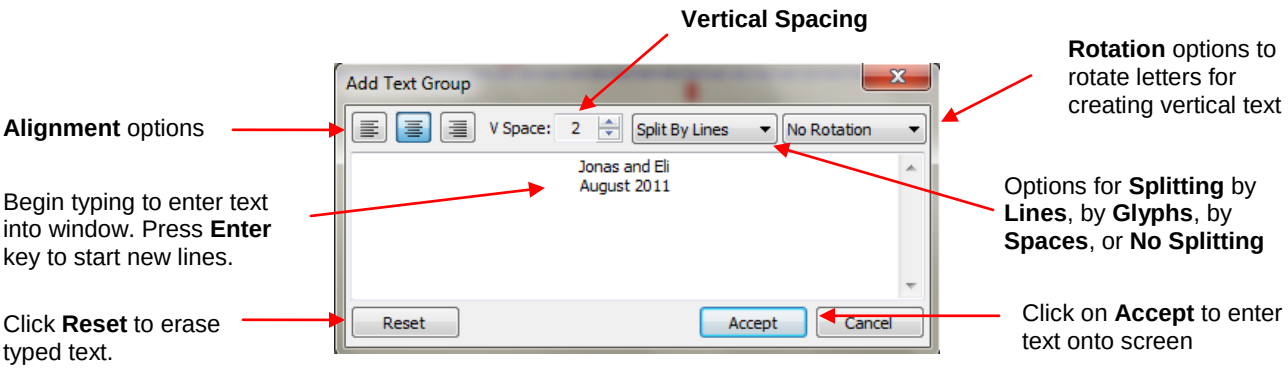
- After invoking one of the methods to open a font file, the follow window opens:


Browse to locate a folder.
Click on the font name and it will appear below.
Check this box if you wish to keep font installed in MTC
Click on **Open.**
Open font file...
Look in: 0 Fonts
Name
Date modified
Type
Size
akaFrivolity.otf 2/16/2003 12:52 ... OpenType font file 36 KB
akaFrivolity.ttf 2/16/2003 7:45 AM TrueType font file 158 KB
AlexBrush.ttf 6/1/2009 7:14 AM TrueType font file 61 KB
ALGER.TTF 10/29/1999 12:42... TrueType font file 74 KB
AliciaWonderland.ttf 5/8/2010 4:35 PM TrueType font file 355 KB
Baskerville.ttf 8/4/1995 5:40 PM TrueType font file 74 KB
File name: AlexBrush.ttf
Open
Files of type: All Supported Types
Cancel
AlexBrush
ABCDabcd
Install permanently inside Make The Cut

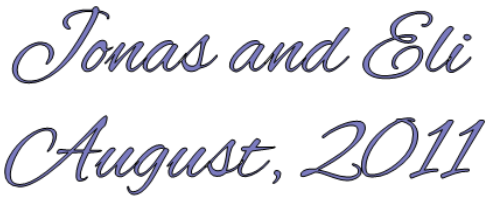
- When MTC is closed, any new fonts which were opened during that session (but not permanently installed in MTC) will automatically be uninstalled from MTC. Not to worry! Once a particular font is used to create text and that file is saved, then that same font does not need to be re-opened when opening that same file.
- If you wish to continue using that same font in MTC for other projects, then check the **Install permanently inside Make The Cut** box at the bottom of the **Open Font File** window. To remove a font permanently installed in MTC, select it and press the delete key on your keyboard or right click on the font.

5.03 Add Text Group

- There are two ways to open the **Add Text Group** window for creating text for your project:
  - ◊ Click on the **Add a Group of Characters** icon on the **Text and Fonts** tab
  - ◊ Press **Ctrl+I.**


Vertical Spacing
Rotation options to rotate letters for creating vertical text
Alignment options
Add Text Group
V Space: 2
Split By Lines
No Rotation
Jonas and Eli
August 2011
Begin typing to enter text into window. Press **Enter** key to start new lines.
Options for **Splitting** by **Lines**, by **Glyphs**, by **Spaces**, or **No Splitting**
Click **Reset** to erase typed text.
Reset
Accept
Cancel
Click on **Accept** to enter text onto screen

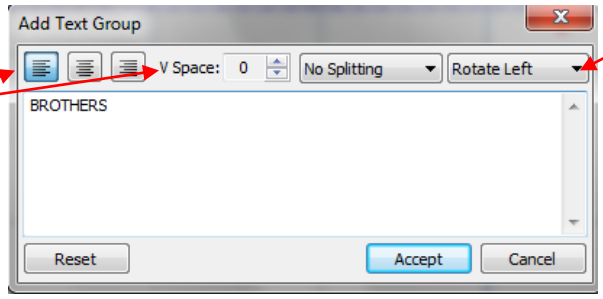
- As you type the text, it will also appear on the screen at the location and height of the **Caret** (refer to *Section 4.01).* After clicking on **Accept** in the above window, the **Add Text Group** closes and the text is ready for any additional editing desired:



Rotating Text

- To create vertical text, select **Rotate Left** in the **Add Text Group** window:

Only one line is typed thus alignment and vertical spacing does not matter



Select **Rotate Left** from menu and each individual letter will be rotated 90^0 to the left.

- Then select the text created and rotate 90^0 (**Ctrl+G**):

Text after clicking on **Accept**

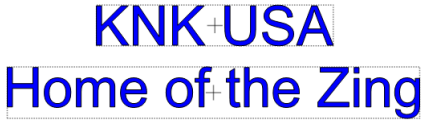
Text after apply **Ctrl-G** to rotate

Splitting Text

- There are four options in the **Splitting** drop-down menu:
  - ◊ **No Splitting**: Entire text is treated as a single shape:

1 shape

  - ◊ **Split by Lines**: Individual lines of text will be separate shapes:



2 shapes, one for each line of text

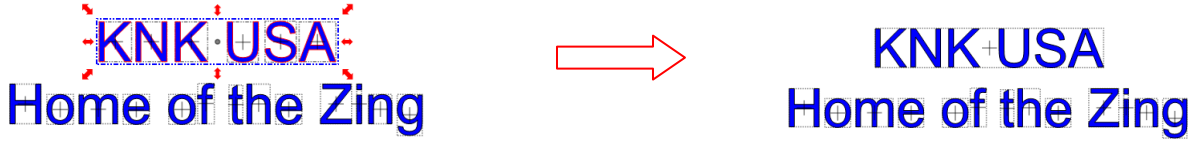
◊ **Split by Spaces**: Spaces created using the space bar will divide text into separate shapes:

6 shapes, one for each word

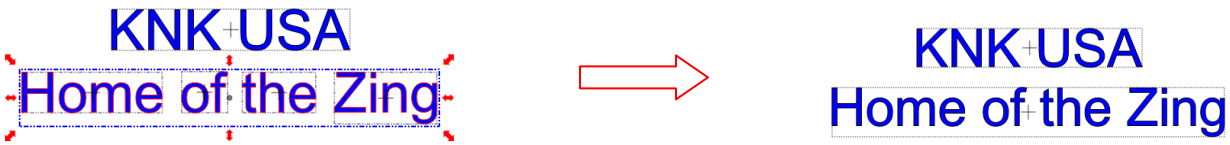
◊ **Split by Glyphs**: Each typed character will be its own individual shape:

19 shapes, one for each character- characters can be individually moved, as desired

- The different options are useful depending on what the next planned step will be with the text. For example, if you plan to overlap the characters to weld together, then you want the text to be **Split by Glyphs**. But as you explore other designing functions, you will learn how the other options will be better choices.
- If you inadvertently select the wrong option for your intended design, not to worry! You can use the **Split** function (**Ctrl+P**) on the text after you close the **Add Text Group** window to **Split by Glyphs**. Then, if you want **Split by Lines** or **Split by Spaces**, then just marquee-select the characters groupings, one at a time, and apply the **Join** function (**Ctrl+J)** to recreate the splitting you wish to have. For example, marquee-select the entire top line of the title that was **Split by Glyphs** and apply the **Join tool:**



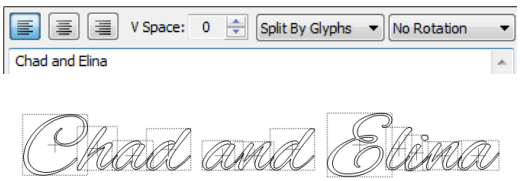
Marquee-select top line of characters | Apply **Join** (**Ctrl+J**) | Top line is now all one shape



Marquee-select bottom line of characters | Apply **Join** (**Ctrl+J**) | Bottom line is now all one shape

5.04 Creating a Connected Letter Title

- Using the instructions from *Section 5.03*, type the letters of your title. In this example, you will want to choose **Split by Glyphs** so that individual letters can be moved to overlap one another, as desired:



- If you forget to select **Split by Glyphs**, then select your title and use the **Split** function in any of the following ways:
  - ◊ Click on the **Split** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+P**
  - ◊ Right click on the screen and choose **Shape Magic>Split** from the menu

◊ Go to **Edit>Shape Magic>Split**.

- With the letters split, you can select one or more and use the left and right arrow keys to change the spacing between letters, overlapping as desired. It is advisable to zoom in on the text to get a more accurate view of the actual positioning of the letters. You may also want to check the text both with and without the **Fill** turned on (which can be changed on the **Virtual Mat** tab).

- You can also quickly overlap letters by selecting them all, holding the **Ctrl** key, and then dragging the middle right of the bounding area towards the left. Note that you must be in **Resizing** mode for this to work (refer to *Section 4.13*) :

Make sure text is in **Resizing** mode.
Chad and Elina
Hold **Ctrl** key and drag this middle double arrow icon to the left to decrease spacing

- When you are satisfied with the overlap, select all of the letters and then apply the **Weld** function using one of the following:

◊ Click on the **Weld** icon on the **Magic Toolbar**

◊ Press **Ctrl+W**

◊ Right click on the screen and choose **Shape Magic>Weld** from the menu

◊ Go to **Edit>Shape Magic>Weld**.

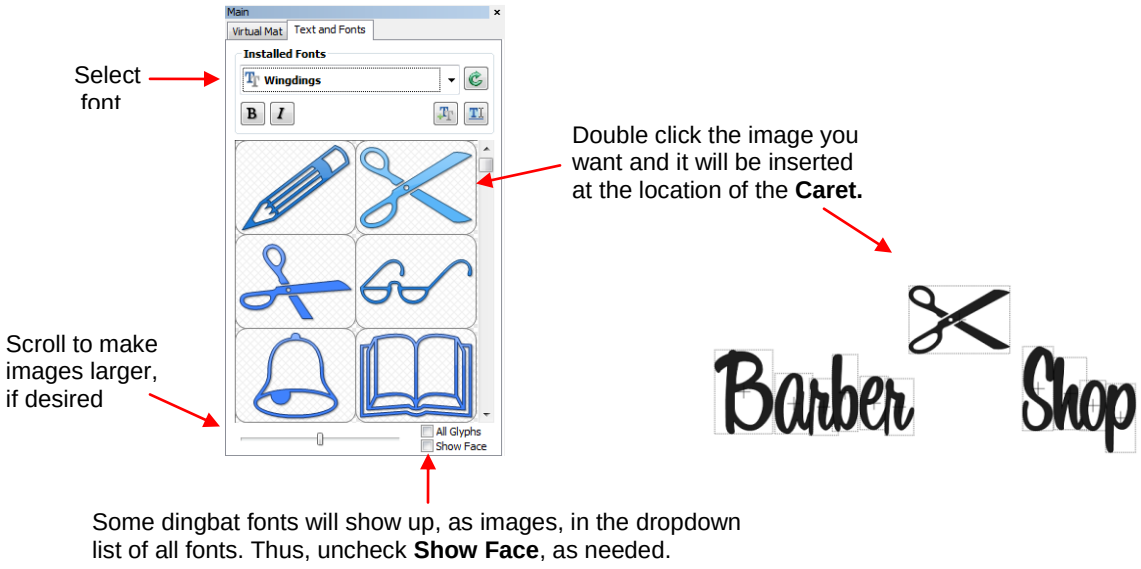
- To create an outline/shadow for titles and other shapes or if you need to thicken a font that turns out to be too thin for cutting, refer to *Section 8.02.*

5.05 Incorporating Dingbat Shapes into a Title

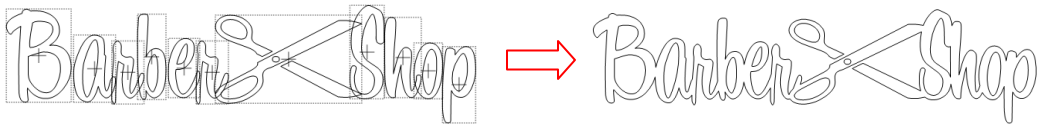
- A quick way to incorporate a shape into a welded title is to use any of thousands of dingbat fonts available from the Internet for free. In this example, a free font called *1 Bean Sprout DNA* is being used for the title and the dingbat font, *Wingdings*, will be used for the shape.
- Using the steps in *Section 5.03,* create the title, with the **Split by Glyphs** option selected:

- Marquee-select the left side and drag away from the right to create a gap for a shape:

- On the **Text and Fonts** tab, select the font, *Wingdings*, from the dropdown menu. Scroll to locate the scissors image. Rather than entering the **Add Text Group** window, you can double click on the image you want to use and it will added at the location of the **Caret** (refer to *Section 4.01*)**:**


Select font
Main
Virtual Mat
Text and Fonts
Installed Fonts
Wingdings
Double click the image you want and it will be inserted at the location of the **Caret.**
Scroll to make images larger, if desired
All Glyphs
Show Face
Some dingbat fonts will show up, as images, in the dropdown list of all fonts. Thus, uncheck **Show Face**, as needed.

- Resize and arrange the dingbat shape, as desired. Also overlap the letters with each other, as desired. Then apply the **Weld** (**Ctrl+W**) tool.



- Note that dingbat fonts are not the only shapes that can be welded to letters. Any shape imported or created within MTC can be used!

5.06 Welding Titles in Imaginative Ways

- Some fonts simply do not work well with the traditional overlapping of the letters to be welded into one piece for cutting. For example, let's take an extreme case with Arial font and the name, "Billy". Note what happens when you take the work and then overlap the letters in this particular font:

Type the letters Overlap the letters Weld the letters – undesirable result

- Most crafters will just start looking for a different font… one with ligatures (extenders) that easily connect the letters to one another. However, many fonts with ligatures are script fonts and may not convey the desired look. So, is there a solution? Definitely! Look for objects that can be used to connect the letters! A basic thin rectangle is an easy solution. Just align it along the bottom of the letters and weld:

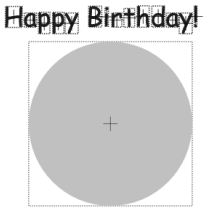
- But the objects to use as a base do not have to be so basic! Look for objects that will tie into a theme! Here are just a few examples:

5.07 Fitting Text to the Outside of a Shape

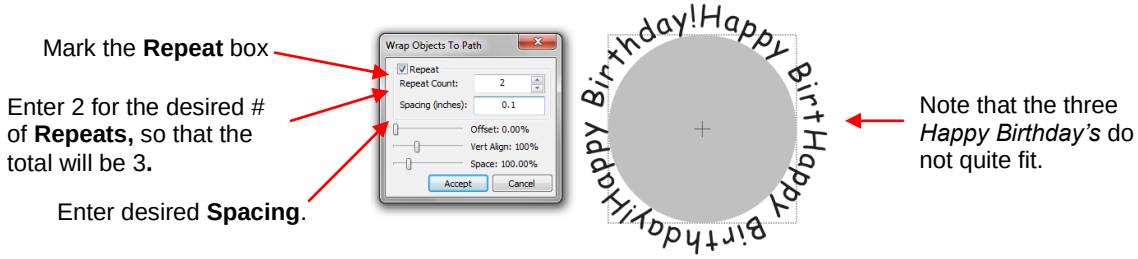
Wrapping Text Around A Circle

- The **Wrap Objects To Path** function can be used to fit text to the outside of a shape. In this example the words “Happy Birthday” will be wrapped around a circle three times.
- The first step is to type the text, making sure the **Split by Glyphcs** option is selected. If you forget, then use the **Split** function to break your text into individual letters:

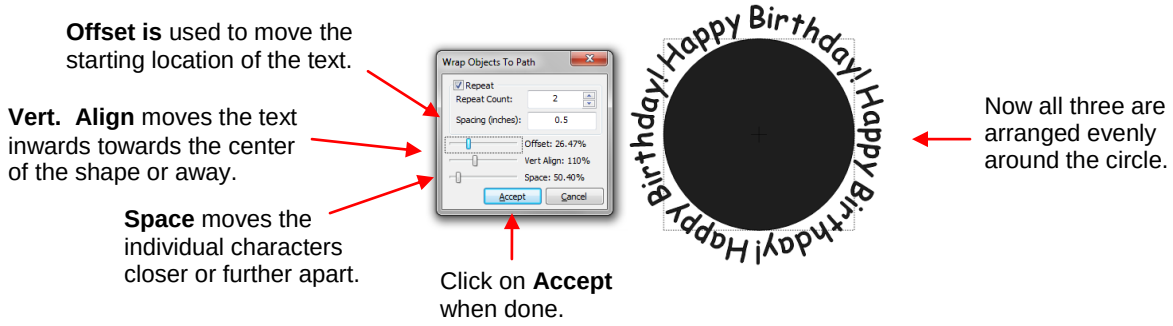
- The next step is to create the circle. You can import a circle from **Basic Shapes** and resize it to what seems close to fit the lettering if the letter were repeated three times. It’s not necessary to be exact as you will have some settings to tweak this! Worst case, you will be able to cancel the process and resize the circle larger or smaller, as needed:



- There is currently only one way to activate the **Wrap Objects to Path** function. Select what you want to wrap (in this case, the text) and hold down the **Ctrl** key while you drag the text onto the shape. When you see the cursor change to release the mouse button and the following window will open:


Mark the **Repeat** box
Enter 2 for the desired # of **Repeats,** so that the total will be 3**.**
Enter desired **Spacing**.
Wrap Objects To Path
Repeat
Repeat Count: 2
Spacing (inches): 0.1
Offset: 0.00%
Vert Align: 100%
Space: 100.00%
Accept
Cancel
Note that the three *Happy Birthday’s* do not quite fit.

- The lettering doesn’t fit. But not to worry! Begin to tweak the settings:


Offset is used to move the starting location of the text.
Vert. Align moves the text inwards towards the center of the shape or away.
Space moves the individual characters closer or further apart.
Click on **Accept** when done.
Wrap Objects To Path
Repeat
Repeat Count: 2
Spacing (inches): 0.5
Offset: 26.47%
Vert Align: 110%
Space: 50.40%
Accept
Cancel
Now all three are arranged evenly around the circle.

- To end up with a perfectly arranged design, work with the settings in this order:
  - ◊ **Repeat Count:** If you want a particular number of repeats, enter it.
  - ◊ **Spacing:** This is the distance between each of the repeats. In our example, it is the space set between the end of “Birthday” and the start of the next “Happy.” Note that this may not be retained as the **Space** setting is adjusted to get all of the repeats visible.
  - ◊ **Space:** This is the distance between the individual shapes making up the design. In our example, it is the space between all of the letters making up “Happy Birthday.”

- ◊ **Vert. Align:** This indicates how close the original text is positioned to the circle. At 100%, the text just touches the circle but the setting can be increased to move the text outwards, away from the center of the circle or decreased to move the text inwards, towards the center.
- ◊ **Offset:** This will rotate the text around the outside, if desired, so that the text begins in a circle location along the outside of the circle.

- On the settings you drag with your mouse button, remember to also use the right and left arrow keys on the keyboard for smaller changes in the settings.
- Click on **Accept** and then delete the circle:

Wrapping Text Half-way Around the Top and the Bottom of a Circle

- In this example, the text needs to be split so that the first half wraps around the top half of a circle and the second half wraps the other way around the bottom.
- Type the text, again making sure that **Split by Glyphs** is selected. In this example, an address will be used:

231 Semoran Commerce Place Apopka, Florida 32703

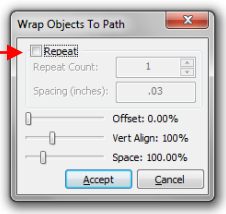
- Marquee-select the second half of the address and apply both the **Mirror** and the **Flip** functions:

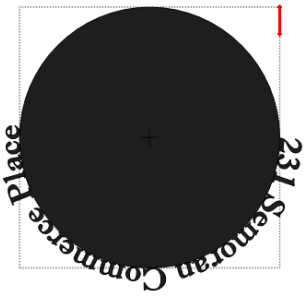
After applying **Mirror** (**Ctrl+M**) on second half of text

After applying **Flip** (**Ctrl+F**) on second word

- Draw a circle and marquee-select the first of the text. Hold the **Ctrl** key while dragging the text into the circle, letting go of the mouse button first. The **Wrap Text to Path** window will open:

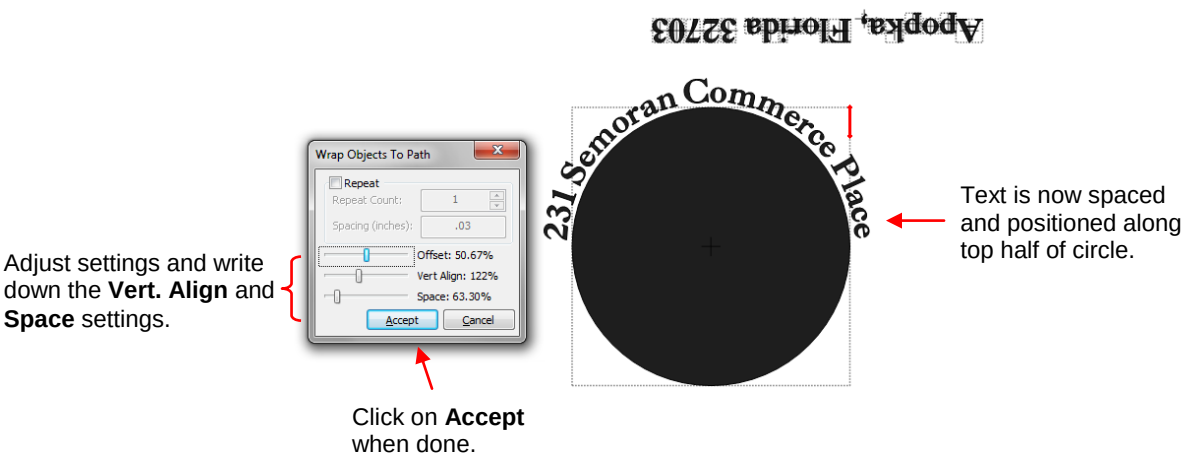
Do not check **Repeat** box as there will be no repeats in this case.





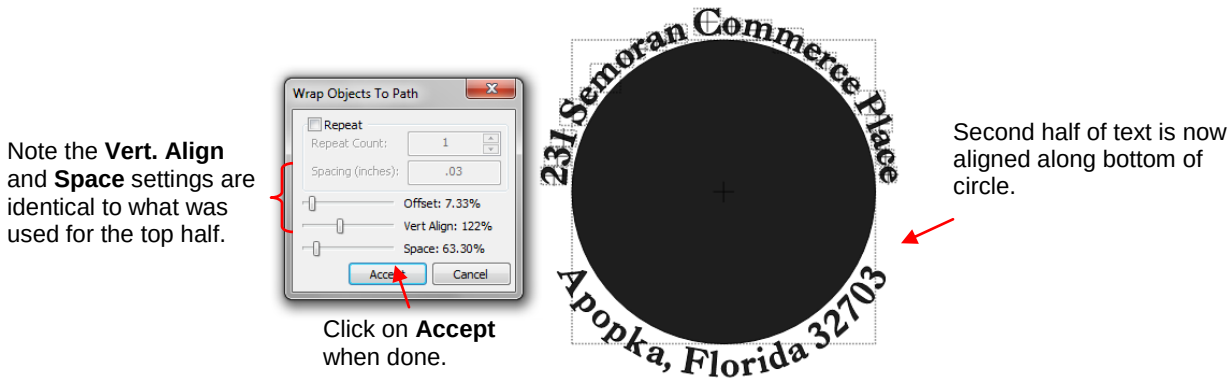
Text is aligned along bottom, so **Offset** will be adjusted to move text to the top.

- This time, leave the **Repeat** box unchecked. Then begin adjusting the **Offset** so that the text moves to the top half of the circle. It is a good idea to write down the **Space** and **Vert. Align** settings so that similar values can be used when you do the second half of the text:



- After clicking on **Accept**, the second half of the text is selected and, again, moved to the center of the circle while holding the **Ctrl** key:

- Adjust the **Vert. Align** and the **Space** settings to match what was used for the top half. Then change the **Offset** to align second half of text along the bottom half of the circle.


Wrap Objects To Path
Repeat
Repeat Count: 1
Spacing (inches): .03
Offset: 7.33%
Vert Align: 122%
Space: 63.30%
Accept
Cancel
231 Semoran Commerce Place
Apopka, Florida 32703
Note the Vert. Align and Space settings are identical to what was used for the top half.
Click on Accept when done.
Second half of text is now aligned along bottom of circle.

- Click on **Accept** when done. Add other shapes, as desired. In this case the company named was added to the center:

- The **Wrap Object to Path** can be used for other designing applications, one of which is shown in *Section 8.05*.

5.08 Fitting Text to Paths

- A different function, the **Bézier Warp**, can also be used to fit text to a circle or to fit text to a custom designed path.
- As before, type the letters you wish to fit to a circle using the method described in *Section 5.03.* The text created in *Section 5.04* will again be used. Note that the lettering can be welded or not. And if not welded, the letters can be **Split by Glyphs** or not:

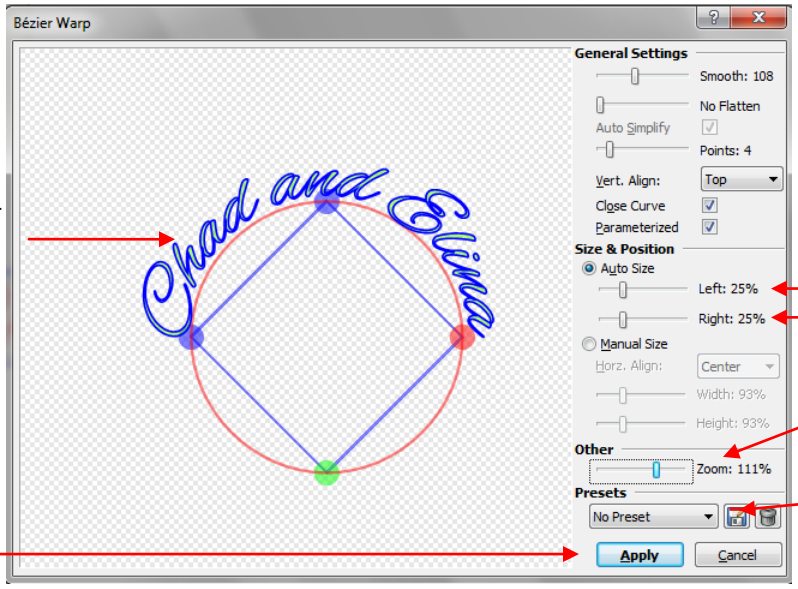
- With the title selected, open the **Bézier Warp** window using one of the following ways:
  - ◊ Click on the **Bézier Warp** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+T**
  - ◊ Right click on the screen and choose **Shape Magic>Bézier Warp** from the menu
  - ◊ Go to **Edit>Shape Magic>Bézier Warp.**

Click on **Apply** when done.

Closed Path in Bézier Warp

- In the first example, the text is fit to a circular shape and the **Auto Size** option is chosen. Note that the **Manual Size** option could also have been used and will be selected in the example after this one:

Text will initially be wrapped around entire circle. But after adjusting **Size & Position**, text will appear like this.



Scroll these two settings to 25” to fit text halfway around circle.

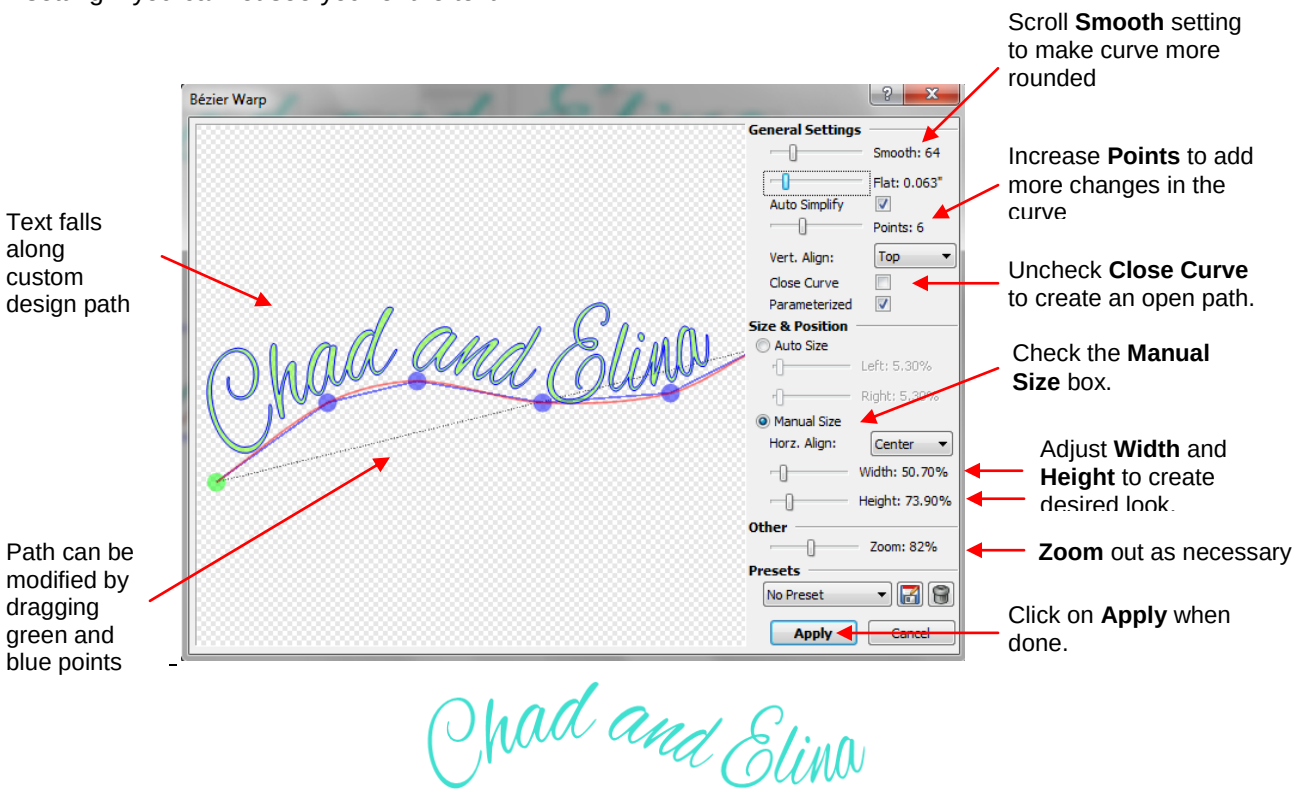
Option to zoom preview image

Option to save current settings

Click on **Apply** when done.

Open Path in Bézier Warp

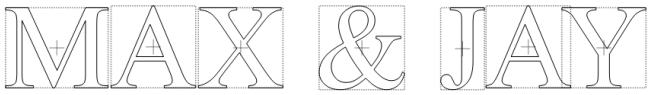
- To use an open path, the **Close Curve** option is unchecked, so that the path is a line instead of a circle. Next, more **Points** are added and then the points are dragged to create the desired path. Use the **Zoom** setting if you cannot see your entire text.



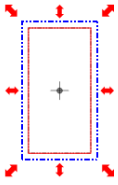
- In this example, **Manual Size** was selected but you can also try **Auto Size** again, too! The **Bézier Warp** process is about experimenting and having fun with it! Take notes if you like on certain settings that worked well for you. And remember that the option to save settings is available.

5.09 Creating an Overlay Title and Welding Text to Frames

- Creating a frame for welding single letters or images is very easy. Using the steps in *Section 5.03,* create a title. The font chosen for this example is *Times New Roman*. Also, **Split By Glyphs** is selected so that individual letters can be resized, if needed, to overlap the frame:

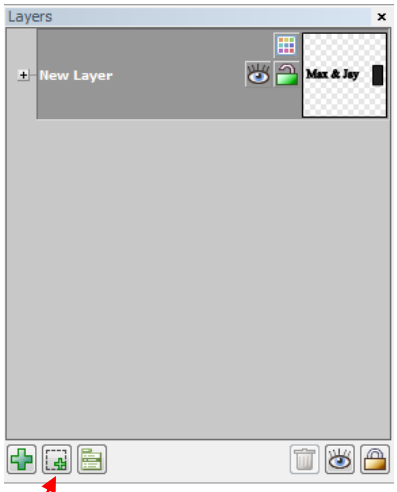


- Click on the **Import Basic Shapes** icon on the **Import Toobar** and select **Polygons**. Scroll to locate the **Rectangle** shape and double click to add to the screen:

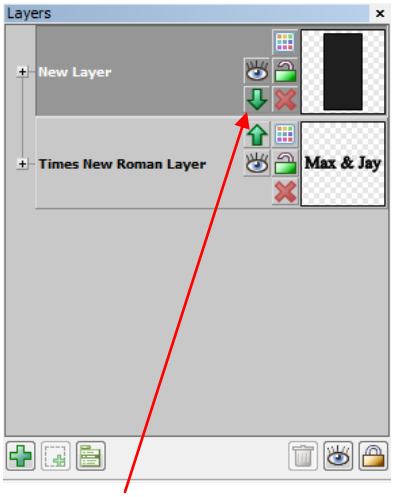


- On the **Virtual Mat** settings tab on the **Main Bar** (refer to *Section 4.04*), make sure you have **Outline** mode selected so that you will be able to see the rectangle and the letters clearly. Also, change to **No Snapping** under **Snap Position** so that you can resize the rectangle and letters with precision.

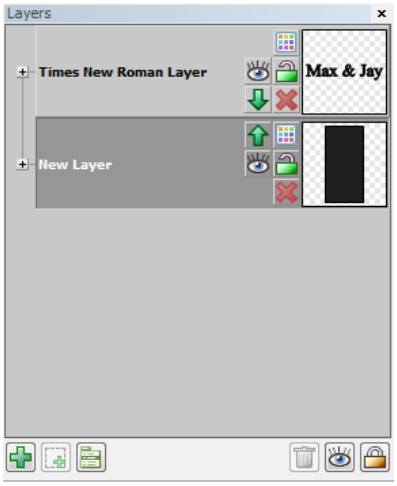
- It will also be easier to select individual letters if the rectangle is on its own layer and below the text. With only the rectangle selected, click on the **Selection to New Layer** icon (at the bottom of the **Layers Bar**) and then move the rectangle layer so that it is below the text layer:



The selected rectangle is moved to its own layer by clicking on **Selection to New Layer** icon.

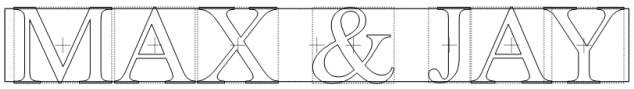


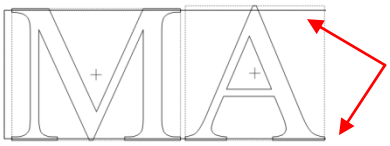
Then, the layer with the rectangle is moved below the layer with the text by clicking on the down arrow on that layer



Now the two shapes are on separate layers with the text above the rectangle

- Resize the rectangle to be wide and thin so that the letters extend a little above and below it. Then resize and respace individual letters, as needed, to overlap the rectangle. Remember to zoom in for a closer look at the overlap:





Zoom in to verify the overlap and adjust individual letters, as needed.

- If the regular weld tool were applied at this point, the letters would disappear, with the exception of the tiny overlaps at the top and the bottom:

- Thus, an alternative type of weld must be applied. The one to use is part of the **Boolean Join** options (Refer to *Section 8.03* for more details on the **Boolean Join**). But before the **Boolean Join** can be used, you must reduce the number of individual shapes to just two: the letters (as one single shape) and the rectangle. To combine the letters to be treated into a single shape, click on the preview of the text layer on the **Layer Bar** and then apply the **Join** function, which can be accessed in any of the following ways:

  ◊ Click on the **Join** icon on the **Magic Toolbar**

  ◊ Press **Ctrl+J**

  ◊ Right click on the screen and choose **Shape Magic>Join** from the menu

  ◊ Go to **Edit>Shape Magic>Join.**

- Now marquee-select both the rectangle and the letters and bring up the **Boolean Join** menu, using any of the following:

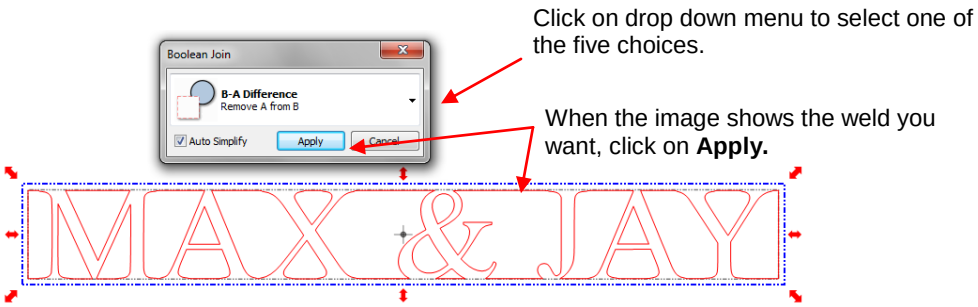
  ◊ Click on the **Boolean Join** icon on the **Magic Toolbar**

  ◊ Press **Ctrl+U**

  ◊ Right click on the screen and choose **Shape Magic>Boolean Join** from the menu

◊ Go to **Edit>Shape Magic>Boolean Join.**

- The following popup menu will appear and as you move your mouse over the various options, you will see your image change on the screen. The option called **B-A Difference** shows the rectangle outline disappearing where the letters overlap, which is what you want in this case:


Boolean Join
B-A Difference
Remove A from B
Auto Simplify
Apply
Cancel
Click on drop down menu to select one of the five choices.
When the image shows the weld you want, click on Apply.
MAX & JAY

- Now, this resulting weld would work fine for an overlay where the negative part of the image is what you want to keep. To have an actual frame, add a rectangle to the outside and then select all, apply **Stack Ctrl+S** (which will center the two shapes) and perform a **Join** (**Ctrl+J**). Here are the two results:

Overlay Title

Title welded to a frame

5.10 Stenciling Letters

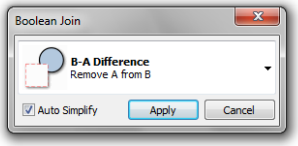
- When creating a stencil, you will want to keep the “waste” or “negative” of a cut. When using regular fonts, such as Arial, some of the letters, such as a “B”, “a”, and “e”, will not work because they have interior paths called child shapes. Those child shapes are not connected to the waste portion of the material and will be lost from the stencil as shown below. The red arrows indicate the child shapes inside parent shapes for the letters “B”,”a”, and “e”:

- To avoid this, a procedure called stenciling can be used to connect the child shapes to the area outside of the letters, essential eliminating them. Type your text using **No Splitting** so that the letters are all one shape. Then create a tall thin rectangle the width of which will be the stencil size you wish to use:

- Place the rectangle on its own layer as you did in *Section 5.08*. Use **Ctrl+D** to duplicate the rectangles and create as many as will be needed to overlap onto the child shapes. In this example, a total of 5 are needed. Then arrange these rectangles so that they overlap each child shape:

Overlap rectangles wherever you want openings to be created.

- Click on the thumbnail of the rectangles layer on the **Layers** bar and then apply a **Join** (**Ctrl+J**) so that the rectangles are now a single shape.
- Marquee-select the text and the rectangles and use **Ctrl+U** to bring up the **Boolean Join** menu. Choose the same option that was used in the previous section: **B-A Difference:**



- Click **Apply**. Now when you cut the letters to create a stencil, all parts of the letters remain connected:

Completed stencil

5.11 Open Path Fonts (OPF)

- Besides TTF and OTF, a third type of font, Open Path Font (.OPF) can be opened in MTC. This font consists of single lines/curves only:

- These fonts are useful when using a pen or engraving tool in your cutter or for designing single line rhinestone titles (Refer to *Section 8.08* for more information on the **Rhinestone** function in MTC.)

- Currently, this font type only works in Make-The-Cut and does not install into Windows for use in other applications.

6. Tracing

6.01 Raster Versus Vector

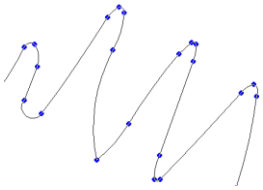
- All graphics are either raster or vector and there is no third type. While you can often tell by the file format, even that isn't always a good way to know for certain. For example, a PDF file can be made from either raster images or vector images and some PDF's will contain both types.
- You may not be able to tell, at first glance, whether an image is a raster or a vector. For example, this screen shot shows the same image in both formats:

Raster Vector

- Most everyone today has a digital camera and, at the very least, has heard the term "mega-pixel." A pixel is a square that is black, white, or colored. Photographs are made up of millions of these pixels to will create the image you see. If you zoom in close enough on any raster image, you can see these tiny pixels. But when you zoom in close on the same area in the vector version, you will instead see lines and curves, not squares/pixels:

Raster Vector

- A vector image isn't made up of pixels. Instead, a vector is like a connect-the-dot puzzle in which little dots (called nodes or points) are connected to each another with paths (either straight lines or curves). Digital die cutters need those paths so that that they can communicate to the cutter where the blade should travel in order to make the cuts you want… kind of like a road map. In MTC, the nodes look like this:



- As mentioned earlier, you can often tell whether a file is a raster or a vector based on the file format. Here are some guidelines:

Raster: BMP, JPG, TIF, PNG, GIF Vector: AI, EPS, WMF, DXF, SVG Either: PDF, sometimes EPS & WMF

- To convert a raster into a vector, MTC offers two options: **Pixel Trace** and **Manual Trace**. Because the **Pixel Trace** feature in MTC is so fast and powerful, it is always worth trying it first. The only situation in which it may not be able to provide the results you need are (1) the image is very tiny or has a very poor resolution or (2) the image has poor contrast between one part and the next. For example, imagine a brown dog lying on brown carpet. How would the software know what part is the dog and what part is the carpet? Thus you may need to manually trace some images, so both functions are covered, in detail, in this chapter.

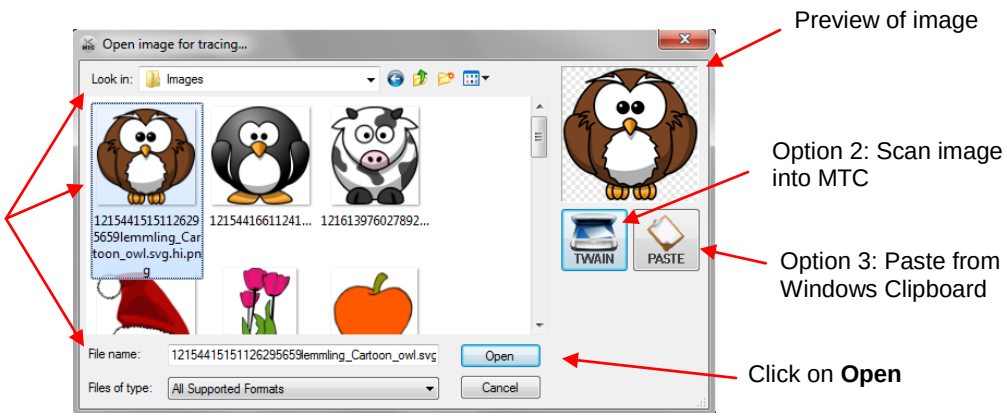
6.02 Finding Easy Images To Trace

- What qualifies as an easy image? The obvious answer is “an image which gives you the results you want!” But those who are new to the vectorizing process do not always realize which images are going to be easy and which ones are not. Note that you shouldn’t be discouraged from trying to trace anything. But when you are learning the process, working with easier images will make the learning stage go smoother. So here are a few guidelines in selecting images:
  - ◊ Black and white images are easier to vectorize than colored images
  - ◊ Colored images with flat colors are easier to trace than those with variegated colors
  - ◊ Large, high resolution images are easier to trace than tiny, low resolution images
  - ◊ Images with tiny details will be more difficult to trace than simpler images with few details
  - ◊ Photographs are usually the most difficult to trace, especially when some of the colors blend (such as the brown dog on the brown carpet, as noted earlier).
- For your own personal use, there are many images that can be found on the Internet. Use Google Images to search and find images based on keywords. Google Images also has filters on the left side of the screen to limit your search to black and white, as well as clipart or line drawings. Use these filters!

6.03 Pixel Trace

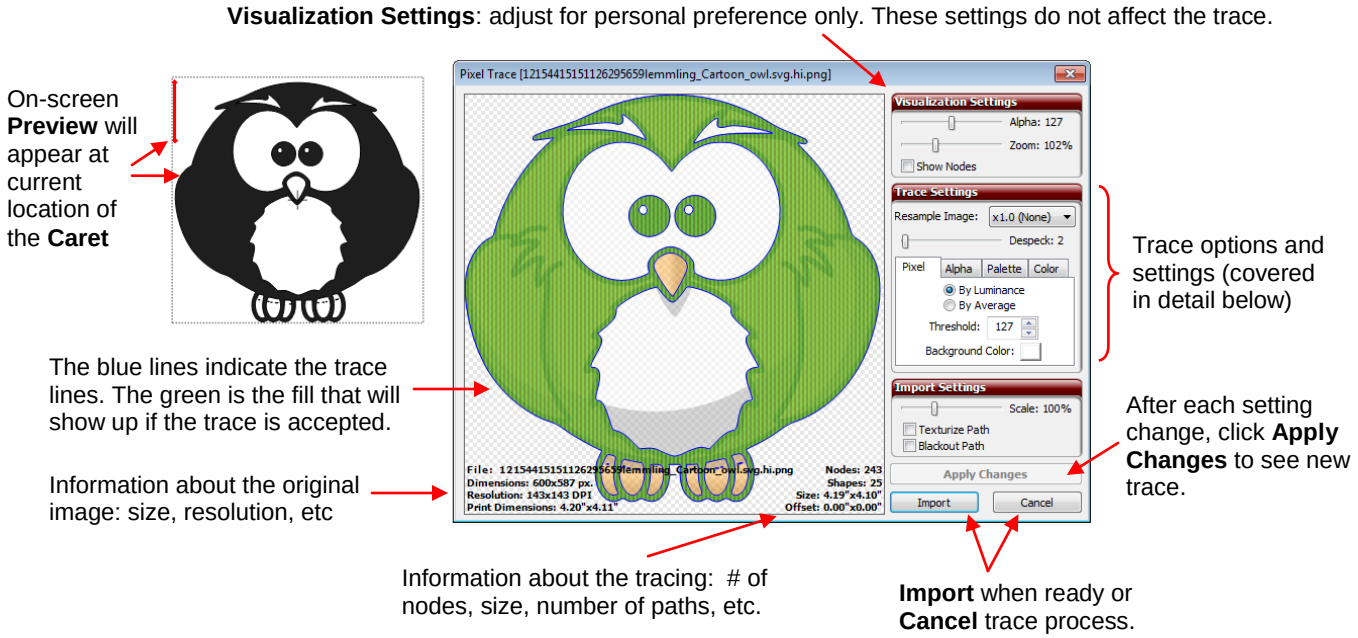
- To begin the **Pixel Trace** process, it is recommended that you first double click near the top left part of the **Virtual Mat**. This will plant the **Caret** at that location and, as you play with the trace settings, you’ll be able to see the results of the current-selected settings.
- The next step is to import a raster image. You can access the **Open Image for Tracing** window in any of the following ways:
  - ◊ Click on the **Pixel Trace** icon on the **Import Toolbar**
  - ◊ Press **Ctrl-Shift-T**
  - ◊ Go to **File>Import>Pixel Trace**.
- When the window opens, there are three options for importing your raster image:

Option 1: Browse to find image folder. Click on the image and the **File Name** will appear below. A preview will appear. Click on **Open** to import the image.



  - ◊ Option 1: Import a file that is already on your computer, CD, flash drive, external drive, etc.
  - ◊ Option 2: Import an image using a scanner connected to your computer
  - ◊ Option 3: Copy/paste an image from Window Explorer or from the Internet

- The image will open in the **Pixel Trace** window. Note the following information in this window:



- When experimenting with the various tracing methods, remember the following:
  - ◊ Each time you change a setting, you need to click on the **Apply Changes** button to see the updated preview.
  - ◊ Before beginning the **Pixel Trace** process, position your **Caret** in the top left part of the screen. You will then also see a preview of the tracing on the main screen as you test different settings in the **Pixel Trace** window. You many need to move the **Pixel Trace** window to see this tracing.
  - ◊ Experiment! Remember that you can change settings and refresh the results without making any commitments. Take notes when you discover something new about tracing!
  - ◊ A combination of tracing methods might occasionally yield the best results. Each time you click on **Import**, you will be given the opportunity to place the current trace into your main window, but then return and try different settings or different methods. Be adventurous in your tracing! You can always go back and delete parts of a trace you don't like or duplicate tracings that are not as perfect as perhaps one of the others. *Chapter 7* contains methods for editing your tracings, as well.
  - ◊ For print and cut applications, mark the **Texturize Path** box so that the original raster graphic will also be imported with the trace. You may also want to mark the **Blackout Path** box so that only the outermost trace line will be imported.

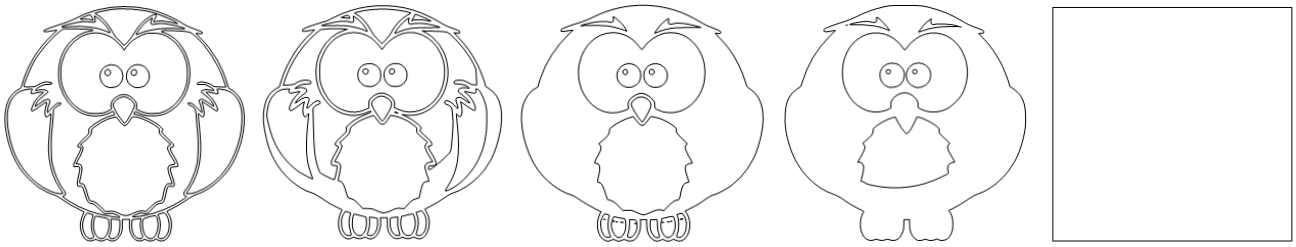
Pixel Trace Method

Video

- The pixel trace is a monochromatic vectorization. In the **Pixel Trace** window, blue trace lines and green fills will appear, regardless of the colors in the original image. These are defaults and can be changed by going to **View>Default Colors**. After tracing, the tracings in the main window will be colored according to the **Virtual Mat** color selected. They can be changed to other colors just like any other shapes.
- The **Threshold** setting ranges from 1—255. Decrease this setting to add more distinction between colors and increase the number of individual paths recognized and traced. Increase to lessen the distinction between colors and decrease the number of individual paths recognized and traced. At the extreme of 255, you will have nothing more than a box around the outside of the image being traced.
- The following screenshots show the same image with different **Threshold** values used and the resulting trace when imported onto the screen:

Image in **Pixel Trace** window:

Resulting trace after import



Threshold: 1
Lots of detail

Threshold: 75
Losing wing detail

Threshold: 127
Wings missing

Threshold: 250
Detail in claws missing

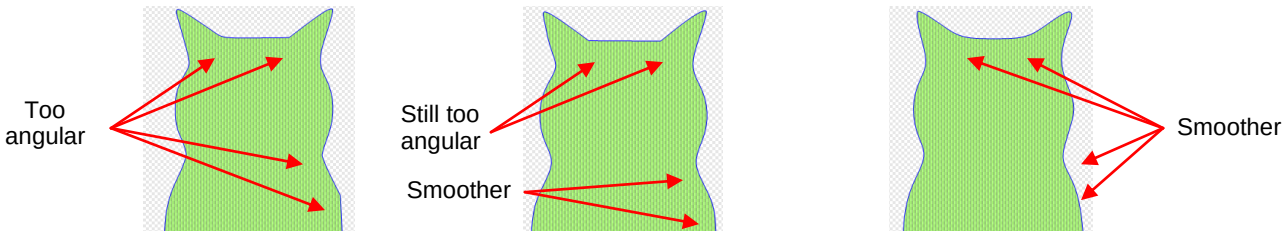
Threshold: 255
Border only traced

- As shown in the above example, the most detail was obtained with the lowest **Threshold**. Typically, this is not necessarily what you want in your tracing. The point is to experiment freely over the entire range of **Threshold** settings to see the effects of changing this important setting. At the same time, test the other available settings.
- Choosing **By Luminance** versus **By Average** can give different results. Start with **By Luminance** and switch if you are having problems getting a good trace. Refer to *Appendix B Terminology* for definitions of these two terms.
- The **Despeck** setting will filter out small paths that you may not want to be traced. Increase to remove these tiny paths from your tracing. However, if you see parts disappearing that you need, then decrease. You can also apply a **Break** to your tracing and then manually delete parts you do not want.

Despeck set to 0:
Tiny specks in owl's claws

Despeck set to 15:
Tiny specks removed

- The **Resample Image** setting can be used to increase or decrease how tightly an image is traced. Lower it to decrease the number of nodes and "loosen" the fit of the tracing. Increase it to increase the nodes and create a more precise fit. This can also be used to soften angular tracings, as shown in this trace of a cat:



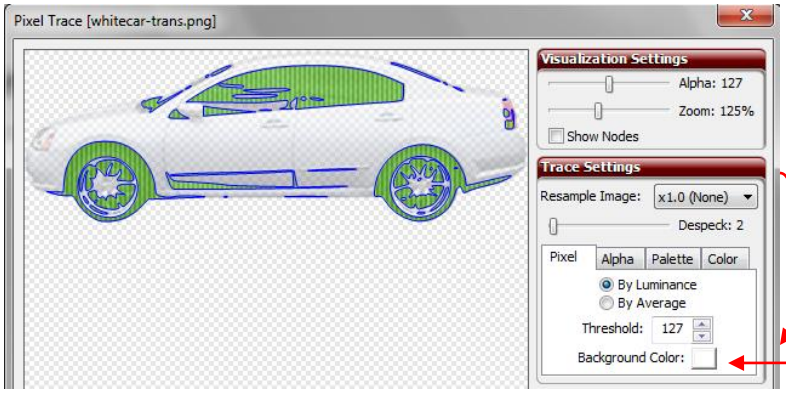
Resample Image: x1.0
Cat image is too angular

Resample Image: x0.75
Improved, but the cat's head is still angular

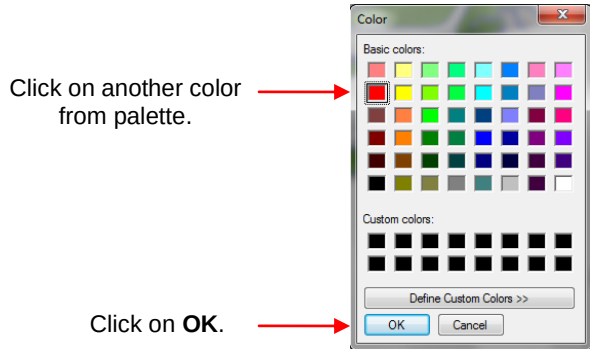
Resample Image: x0.5
All parts are much smoother now

- The **Background Color** setting becomes usable when there is a transparent or alpha channel in the image you are tracing (such as you will find in some PNG and GIF files). The background color will define the semitransparent pixels by blending them with the background color you select. Here is a photo of a white car that illustrates this feature:

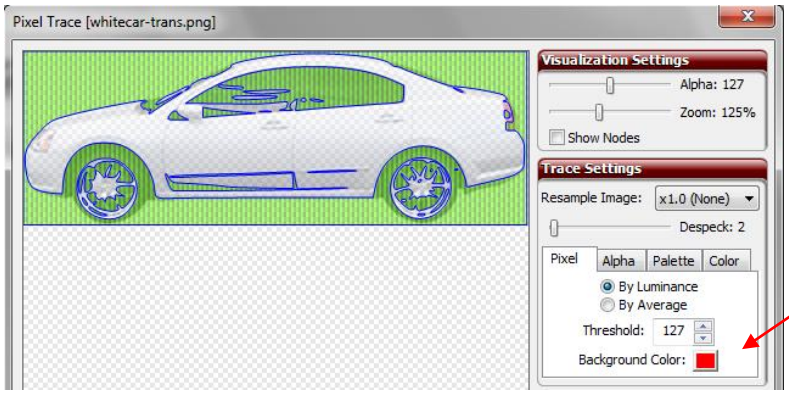
- When imported into the **Pixel Trace** window, with default settings in place, note the parts of the image that are traced with the default white background selected:



- Next, click on the **Background Color** box and a window will open. Select a different color, for example, red:



- The parts of the image that will be traced changes:

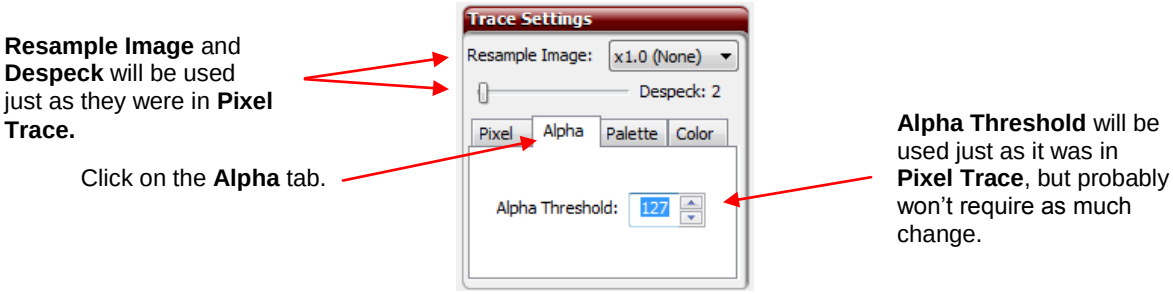


- This can be used to identify and trace different parts of an image, however, with the newer **Alpha, Palette**, and **Color** options available, this feature may not ever be something you need.

Alpha Trace Method

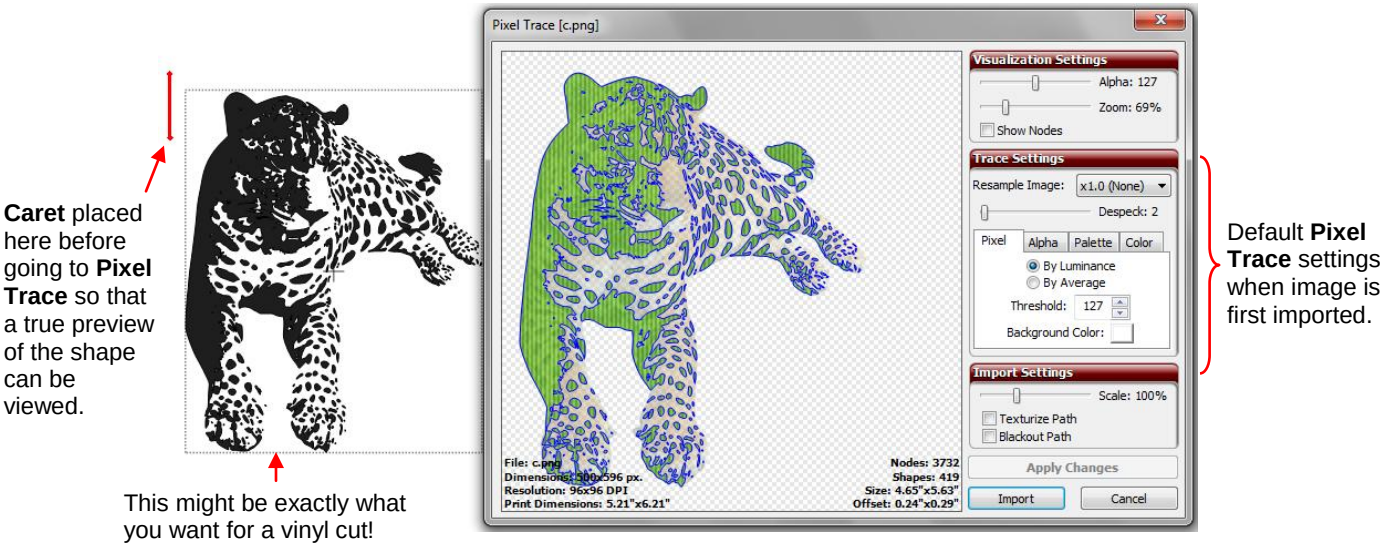
Video

- Use the **Alpha Trace** for PNG files with transparent backgrounds (alpha channels). To switch to the Alpha Trace method, click on the tab named **Alpha** and following will appear:


Resample Image and **Despeck** will be used just as they were in **Pixel Trace.**
Click on the **Alpha** tab.
Trace Settings
Resample Image:
x1.0 (None)
Despeck: 2
Pixel
Alpha
Palette
Color
Alpha Threshold:
127
Alpha Threshold will be used just as it was in **Pixel Trace**, but probably won't require as much change.

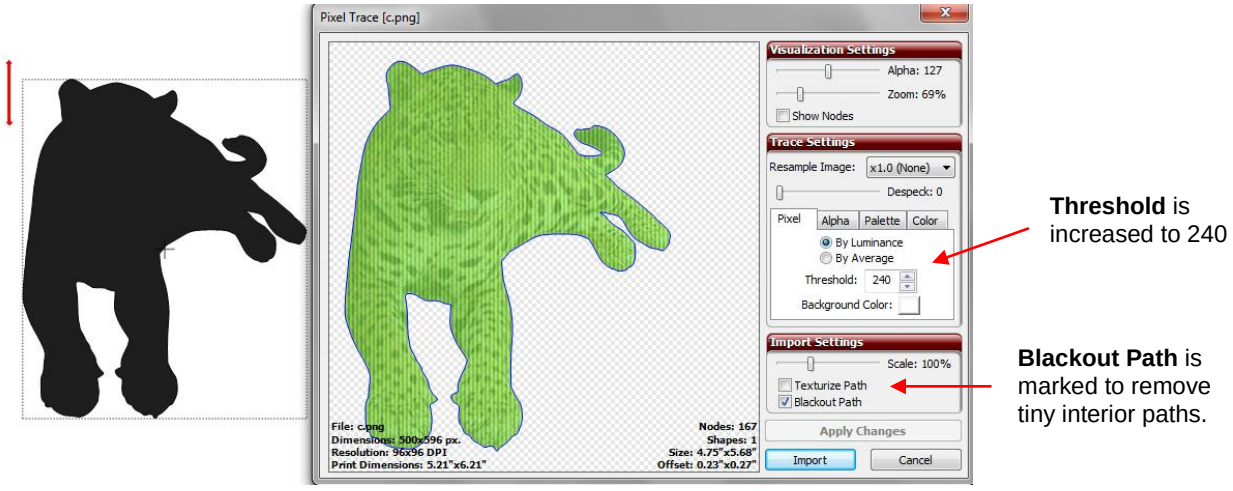
- Use the **Alpha Threshold** in the same way that the **Threshold** was applied. Increase to include more You will mostly likely discover that less adjustment is required. Both **Despeck** and **Resample Image** settings also apply in the same way.
- In this example, we are importing a PNG image of a leopard. Before importing, make the following changes on the **Virtual Mat** tab of the **Main Bar.** These two changes will allow the image you trace to appear in full color, on the main screen, after tracing:

- Before using the **Alpha Trace** feature, note how the leopard appears when the default settings in the **Pixel** tab are applied. Also note that if you first double click in the top left part of the screen, you can "plant" the **Caret** in a location where you can see a clearer preview of shape that will be produced with those settings:

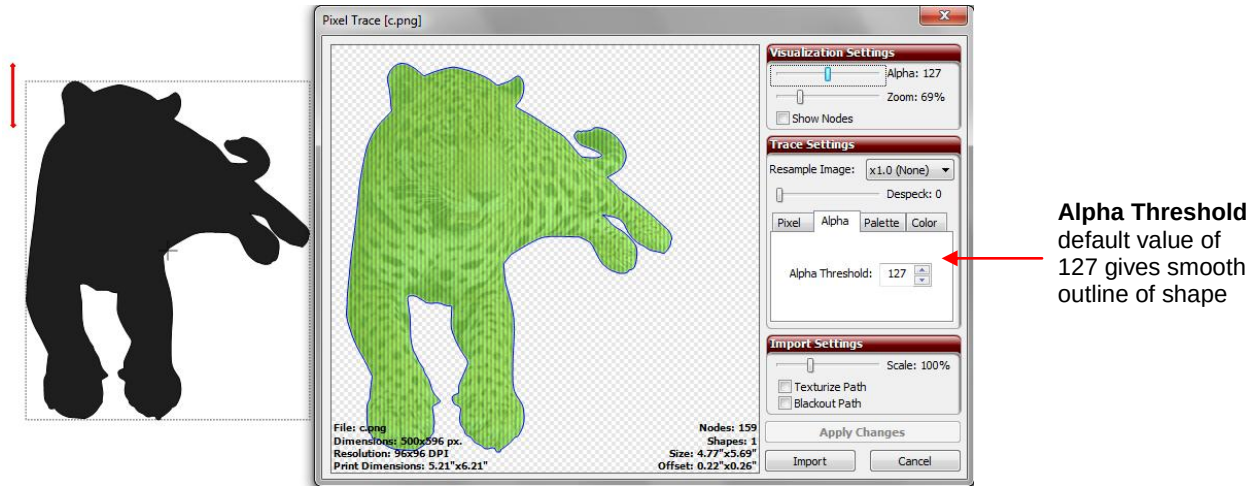


- As indicated in the screenshot, the tracing could be used for vinyl cutting, since vinyl is applied using transfer tape. However, let's say this is going to be a print and cut application in which the leopard will be printed onto paper and then the outside border cut out. What is needed is a single contour line around the leopard. By experimenting with the **Threshold**, it is found that a setting of 240 is needed to obtain a smooth

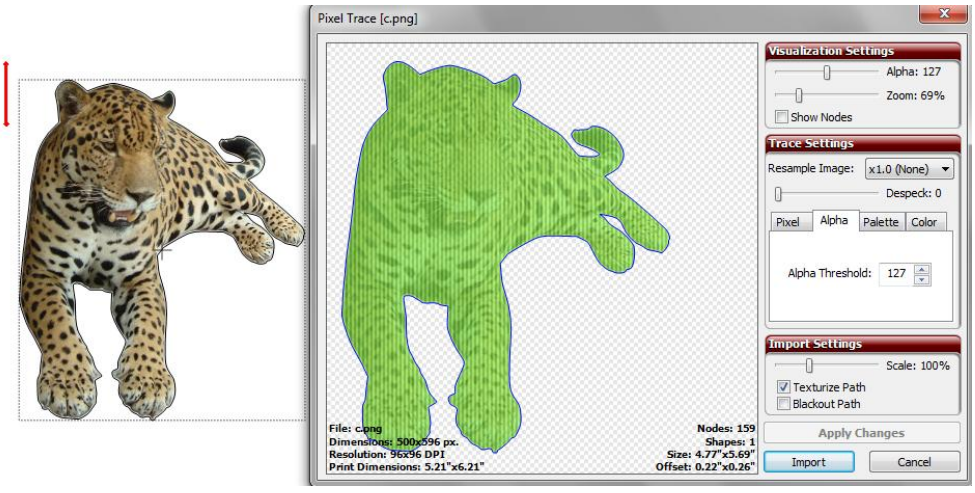
outline around the image. Additionally, either a **Despeck** of 18 or marking **Blackout Path** was needed to remove tiny paths traced inside the animal:



- However, if you switch to the **Alpha Trace** tab, the default of 127 immediately gives you, in this case, the outline you want:



- Mark the **Texture Path** box, click on **Apply Changes**, and the image appears on the screen, ready for the print and cut process (refer to Chapter 9):

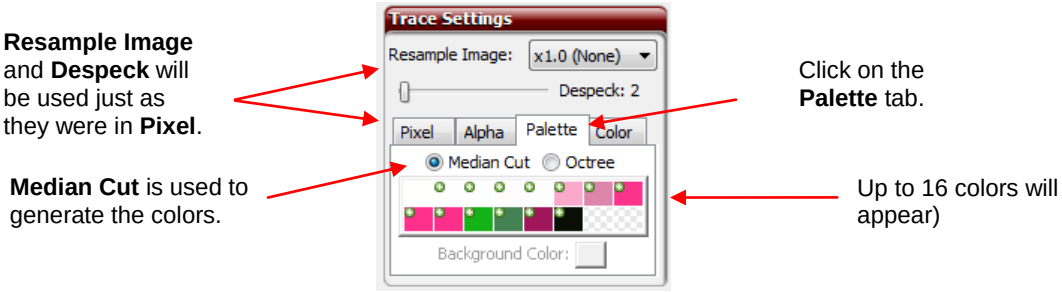


Palette Trace

Video

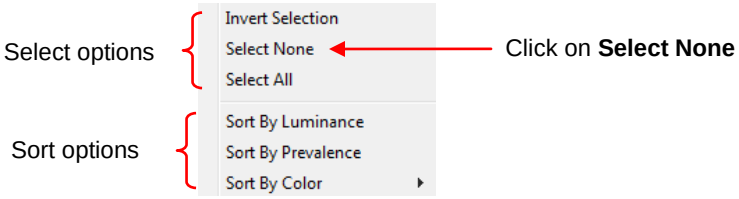
- The **Palette Trace** provides color tracing which is especially useful when designing paper piecing patterns. In this example, the following flower image was imported and will be vectorized:

- With the **Palette Trace**, the most prevalent 16 colors in the image are identified and displayed. To switch to the **Palette Trace** method, click on the tab named **Palette** and the following will appear:

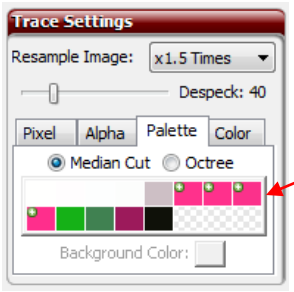


- You can then select which colors to merge together, into one color, to be traced. Note that selecting **Octree**, instead of **Median Cut,** will using a different algorithm and produce a different set of 16 colors:

- For this example, we will return to the choice of using **Median Cut**. First, turn off all of the colors by right clicking on the boxes. A popup menu will appear which provides some options for which colors to have selected as well as how to sort them. Begin by choosing **Select None.**



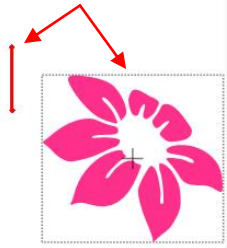
- With no colors selected, you can then click on colors that are similar and would be merged together to simplify the trace. For example, for the flower in this example, begin by clicking on all of the shade of pink:

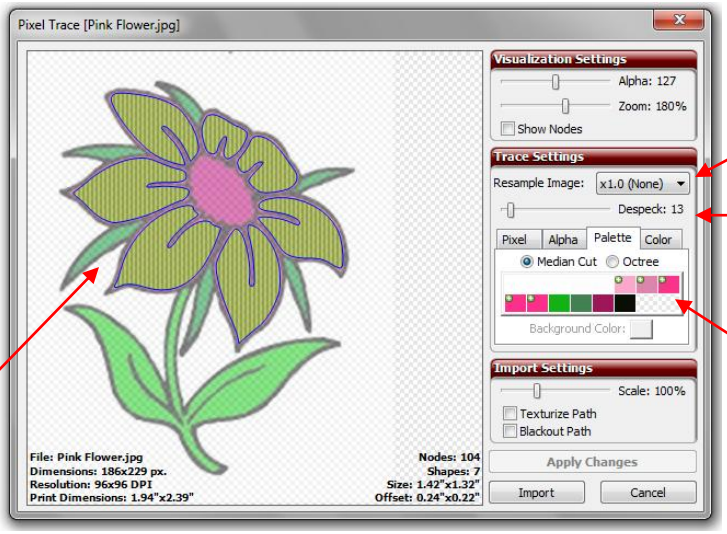


Click once on each pink box to mark it. If you inadvertently click on a color box you do not with to include, click again to deselect it.

- Use **Despeck** to eliminate tiny unwanted paths and **Resample Image to** sharpen details or provide more curves to the image. Also, click on **Apply Changes** as you change settings so that you can see the effect of each change. Now, the parts selected to be traced will be outlined in blue and filled with green, just as we saw with the **Pixel** method:

In the main screen you will see the shape of the tracing at the location of the **Caret.**





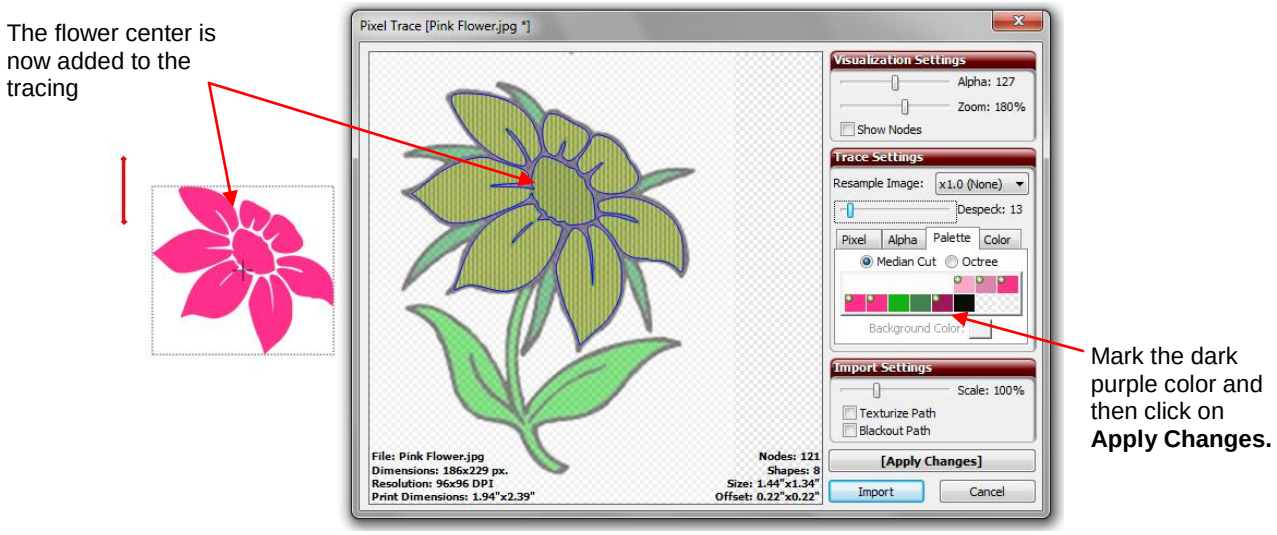
Resample, if needed

Use **Despeck**, if needed

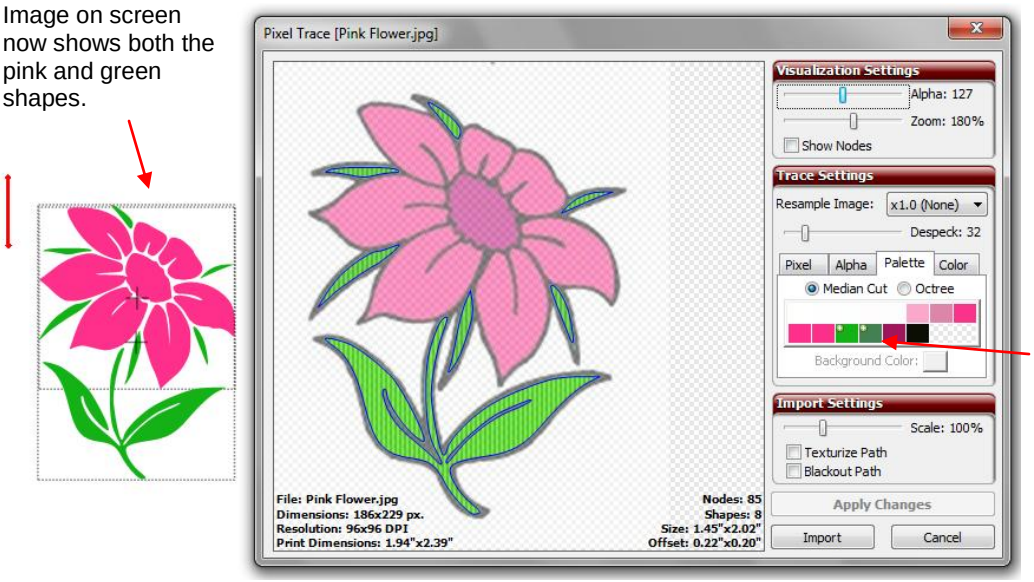
All of the pinks have been marked

A blue outline and green fill mark those parts that are colored the same as the pinks selected.

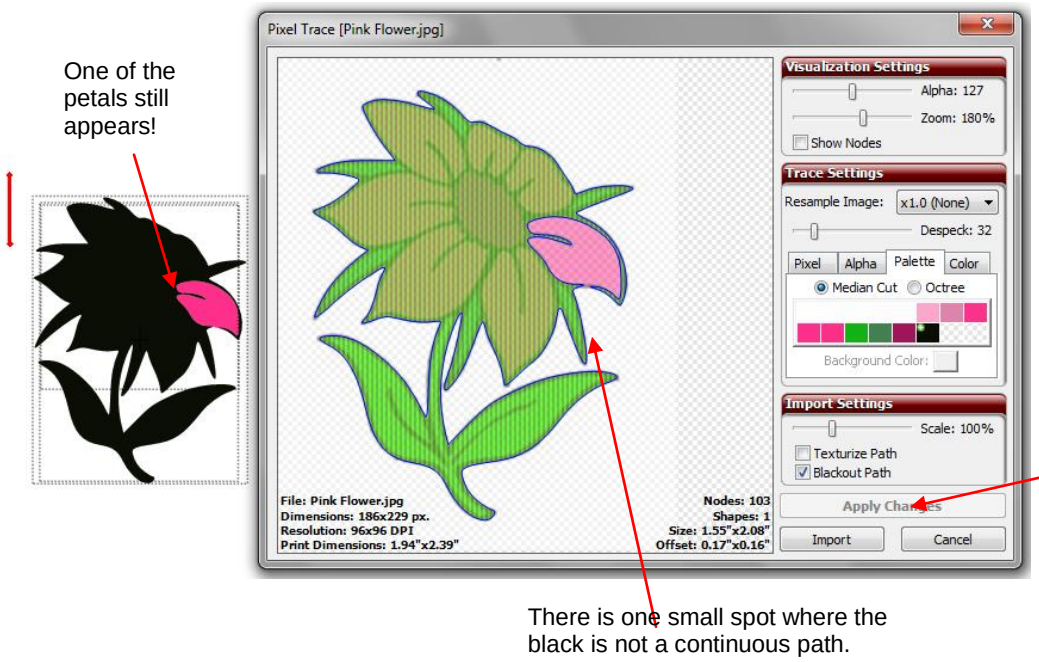
- Note that **Despeck** and **Resample Image** can be used, respectively, to remove tiny unwanted traced specks and to sharper or soften the tracing (just as they were used in the **Pixel Trace** method). In this particular case, only **Despeck** was applied.
- Now, before we accept this part of the image, you can add more colors if you wish. For example, the very center of the flower is more of a purple, but if you are going to cut this as a paper piecing pattern or as a vinyl design, perhaps you want to use the same color for the petals and for the center. Thus, clicking on that color, followed by click on Apply Changes, results in that color being added to the parts that are traced:



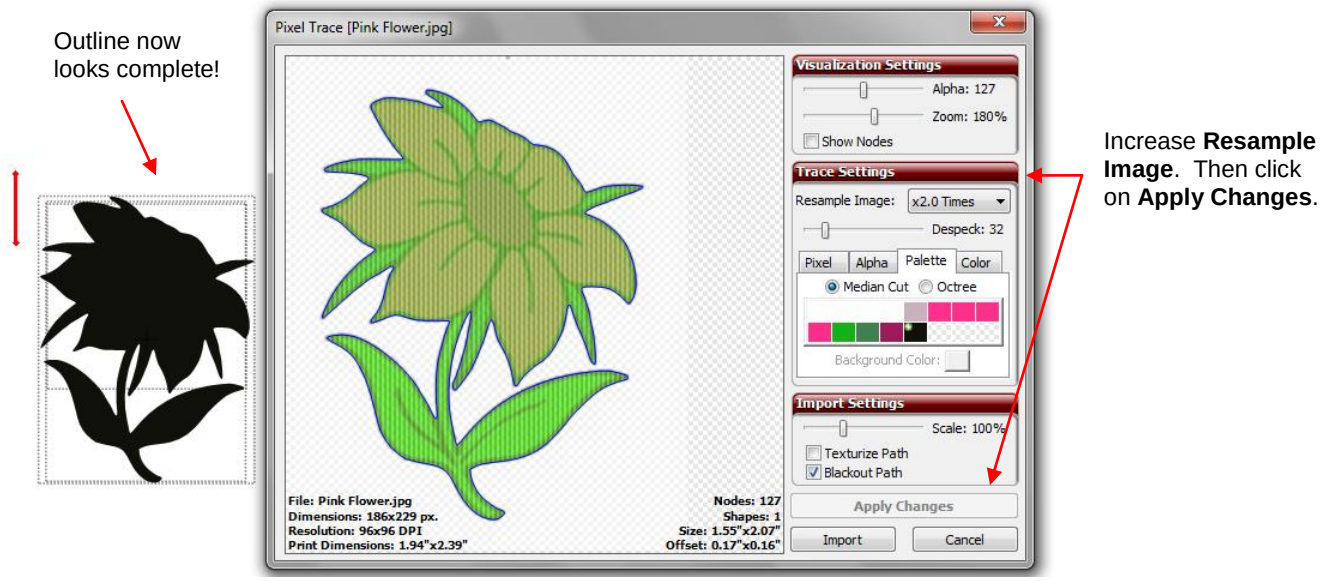
- Click on **Import** and the program will ask you if you want to continue tracing and add more layers. Answer **Yes**. Now click on the pink and red boxes again to turn them off or right click on the colors and choose **Select None** from the menu. Then click on the green boxes and click on **Apply Changes**:



- Click on **Import**. Then decide if you wish to also trace the black shadow around the image or create one using the **Shadow Layer** feature in MTC (refer to *Section 8.02*). If you decide to trace the black layer, then answer **Yes**. Repeat the above step, but only have the black color box selected.
- Now, before clicking on **Apply Changes**, stop and think about what you want to create. You do not want individual black parts to be created as separate shapes. Instead, you want the large black outline on which you will adhere the individual pink petals and green leaves. So, mark the **Blackout Path** option in order to remove any interior parts. Then click on **Apply Changes** to see the results:

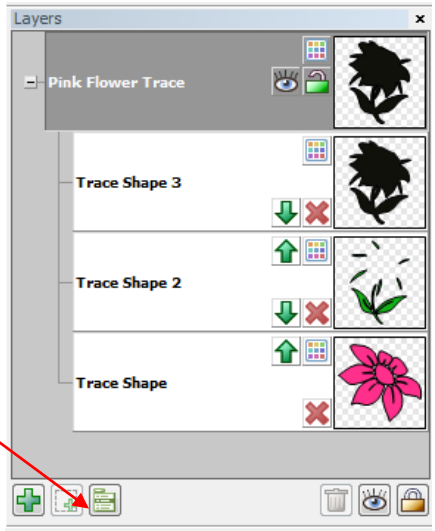


- But there's a problem! Instead of seeing one large black outline of the flower, there's still a petal showing. This is because the black wasn't recognized as extending around the outside edge of that petal. But not to worry… increasing the **Resample Image** value to **X2.0 Times** provided a closer trace and which then covered that thin section around that particular petal:



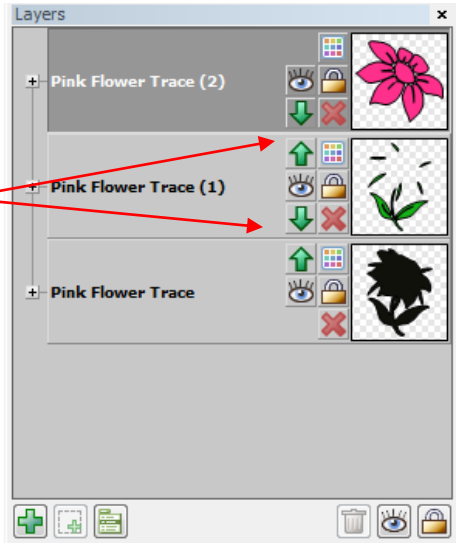
- Click on **Import** and answer **No**. On the **Layers Ba**r, you will see the different layers of your image. However there is no **Show/Hide Layer** icon on those individual layers. Thus you need to click on the **Layer Options Menu** and select **To Each Its Own**:

While individual layers can be selected, you cannot individually turn the layers on and off for cutting by colors. Thus click on **Layer Options Menu** and select **To Each Its Own.**

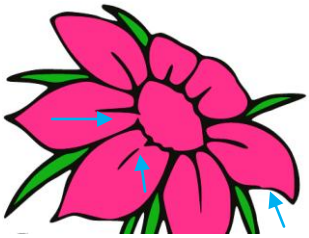


- Now each of the four colors has been moved to its own higher level layer where you will now be able to turn on and off individual layers for cutting. Also, you can move the layers up and down so that the black layer is on the bottom where it serves as an outline:

Arrows were used to change the order of the layers so that the black layer is now on the bottom



- Is the flower perfect? No. The blue arrows indicate where the image needs some tweaking:



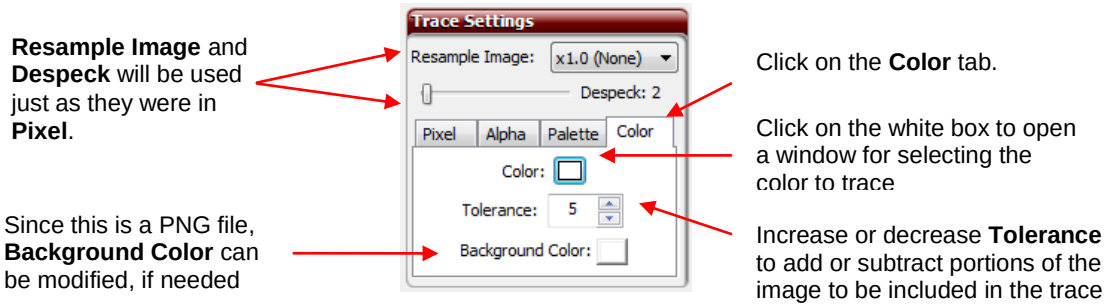
- There are easy-to-use editing tools to tweak the petals in this image. These tools will be presented in *Section 7.11*.

Color Trace

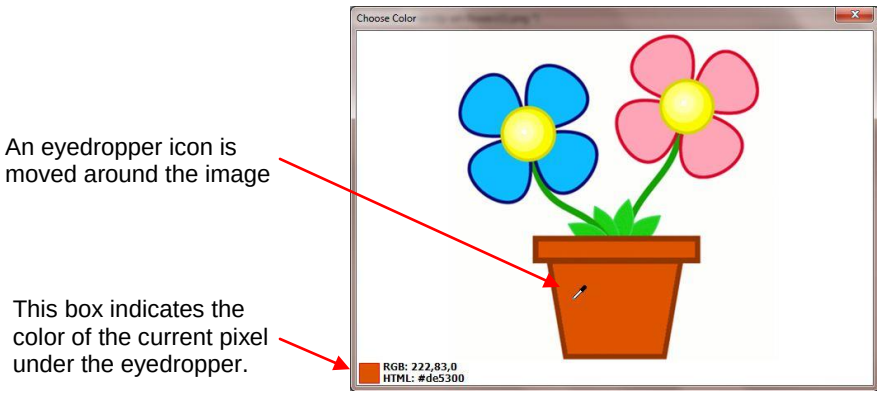
Video

- The **Color Trace** is similar to the **Palette Trace** but you can individually click on a color, from your original imported raster, to trace and then specify a **Tolerance** level which will add or subtract similar colors to include in that selection. This is the image to be used in this example and has been imported:

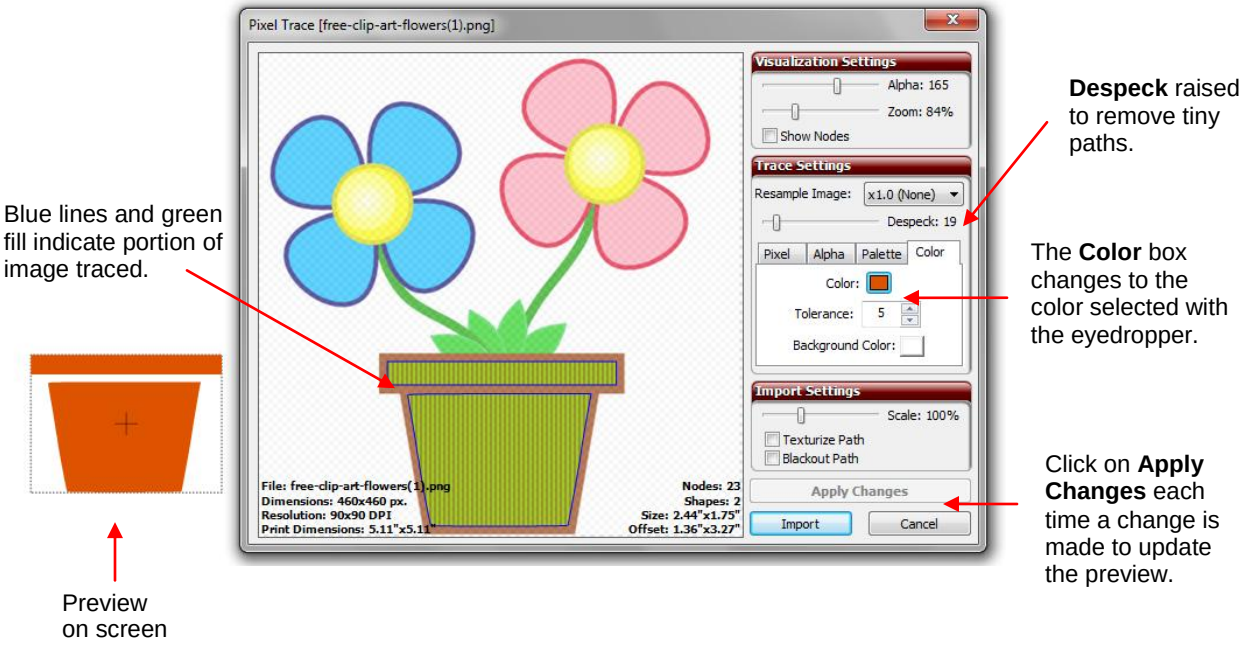
- To switch to the **Color Trace** method, click on the tab named **Color** and the following will appear:


Resample Image and **Despeck** will be used just as they were in **Pixel**.
Since this is a PNG file, **Background Color** can be modified, if needed
Trace Settings
Resample Image:
x1.0 (None)
Despeck: 2
Pixel
Alpha
Palette
Color
Color:
Tolerance:
5
Background Color:
Click on the **Color** tab.
Click on the white box to open a window for selecting the color to trace
Increase or decrease **Tolerance** to add or subtract portions of the image to be included in the trace

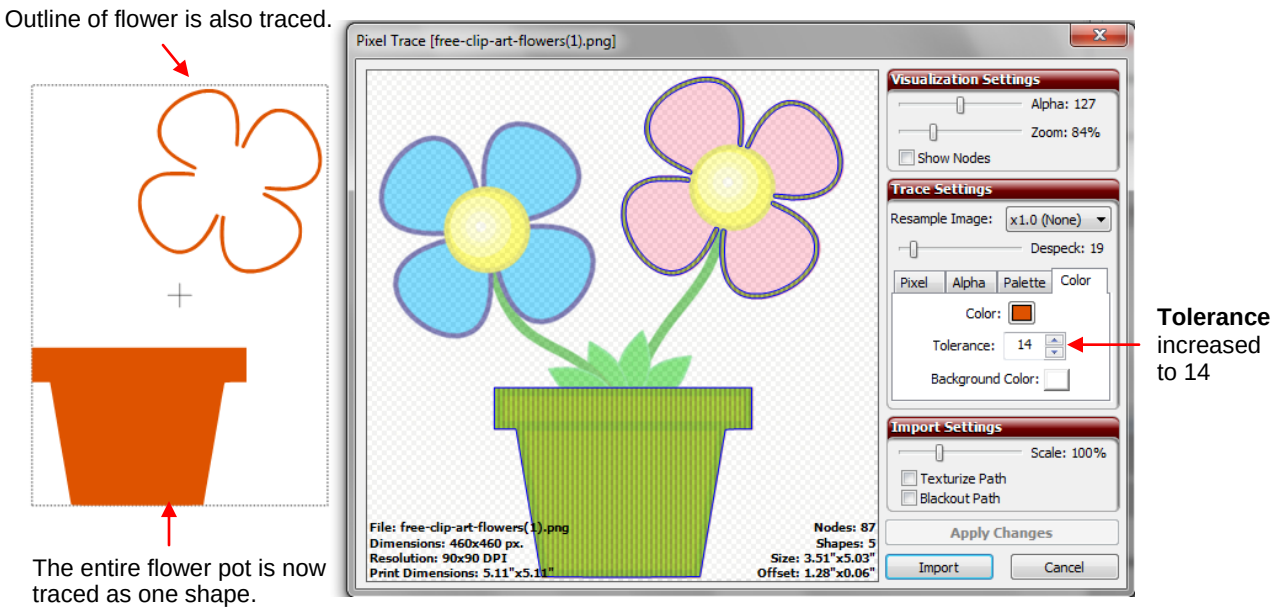
- The first step is to click on the little white box on the **Color Trace** tab. A window will open showing the imported image and you can select the first color to be traced. Let's start with the interior of the flower pot. An eyedropper cursor will appear and it can be moved around the screen so pick up the color of any part of the image. To select the color of the flower pot, simply place the eyedropper anywhere over the flower pot:


An eyedropper icon is moved around the image
This box indicates the color of the current pixel under the eyedropper.
Choose Color
RGB: 222,83,0
HTML: #de5300

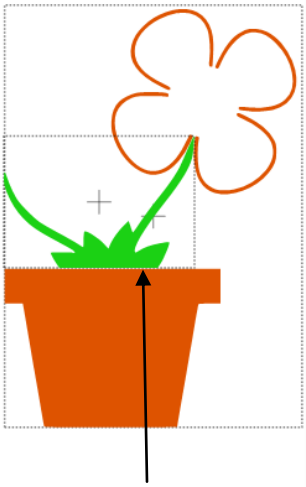
- When the desired color is selected, left click once to select it, click on **Apply Changes**, and the trace will be immediately made using current settings. Just like with the other trace methods, other settings in this window can be adjusted. In this particular case, the **Despeck** setting will need to be used to eliminate tiny paths being added to the tracing.



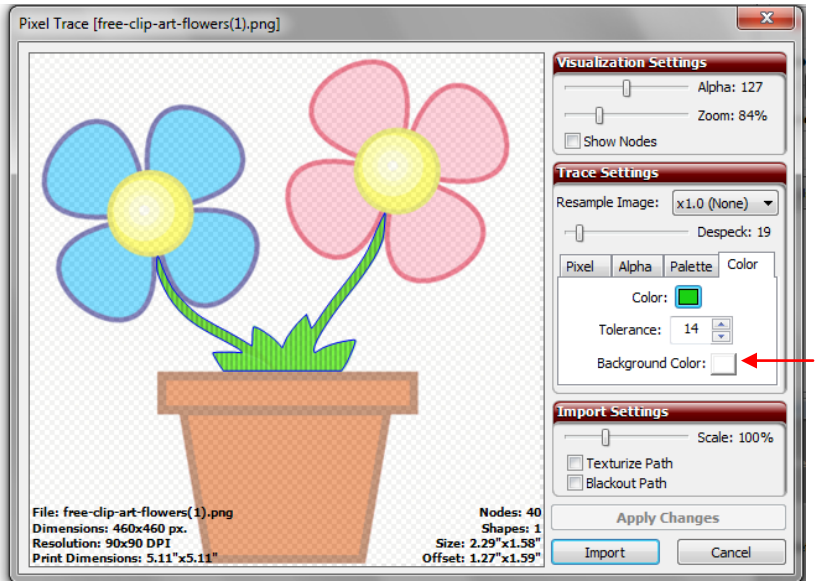
- Let's assume that you want the entire flower pot traced instead of just the interior. Increase the **Tolerance** setting to expand the color range that is close to the original color. In this example, the **Tolerance** is increased to 14 and the flower pot looks great! The entirety is now traced. Unfortunately, outside of the pink flower also fell into this color range and is being included. But that's okay! That part can be deleted later after the tracing is completed:



- Click on **Import** and the program will ask you if you want to continue tracing and add more layers. Answer **Yes**. Click on the **Color** box again and then pick another color. This time choose the green leaves:

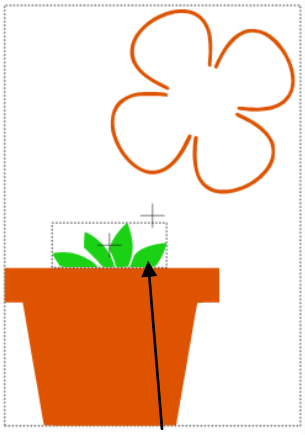


The leaves and stem are both traced.

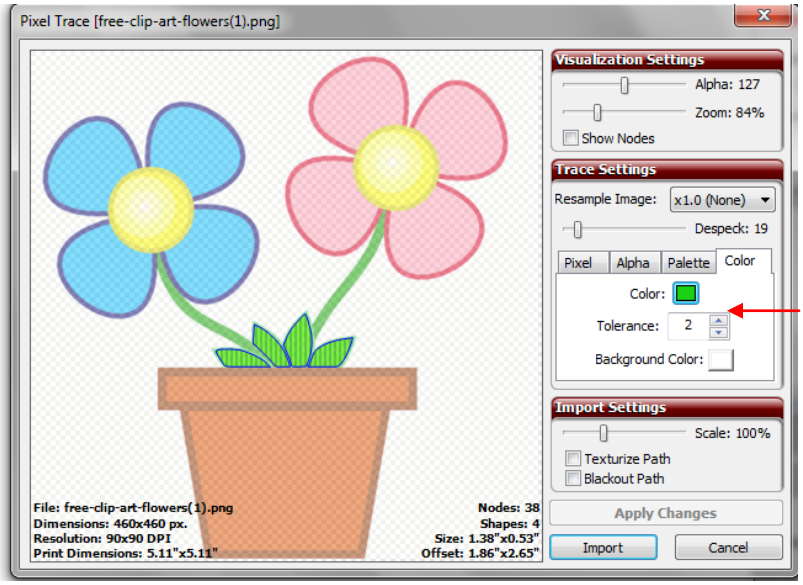


Tolerance is still set to 14.

- If you want the leaves and stem to be traced as different shapes, then reduce the **Tolerance**. It was required to reduce the **Tolerance** all the way down to 2 in order to get just the leaves traced:

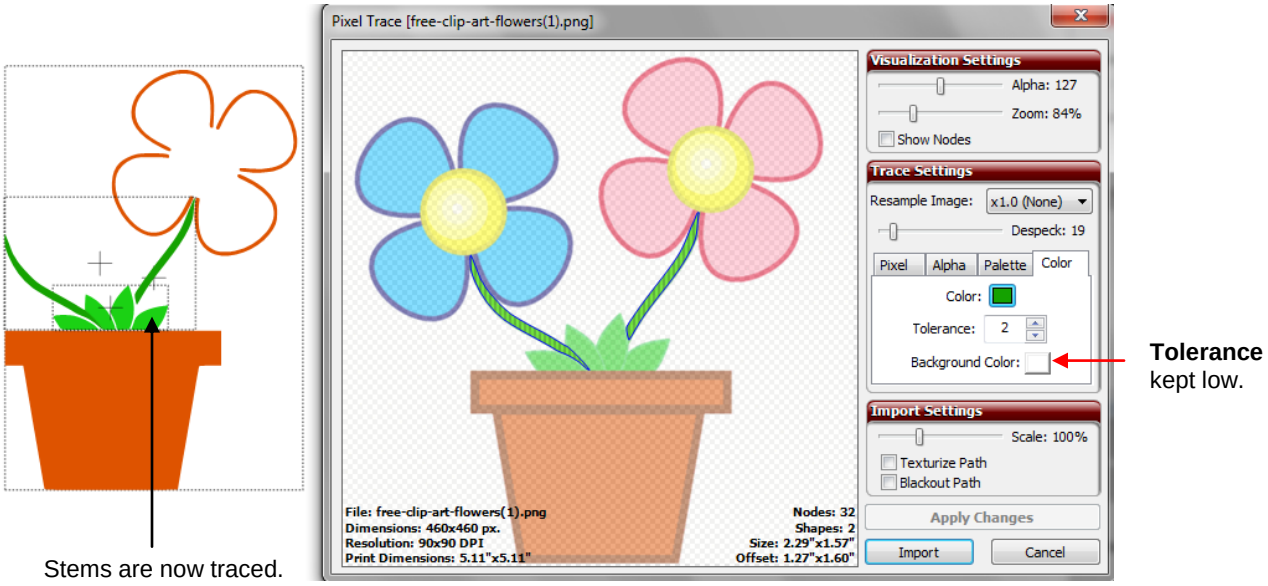


Just the leaves are traced.

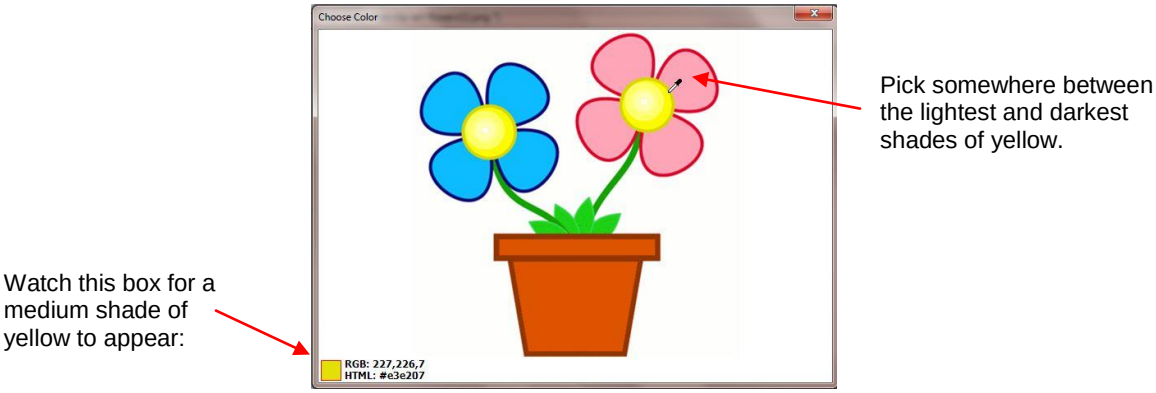


Tolerance is reduced to 2.

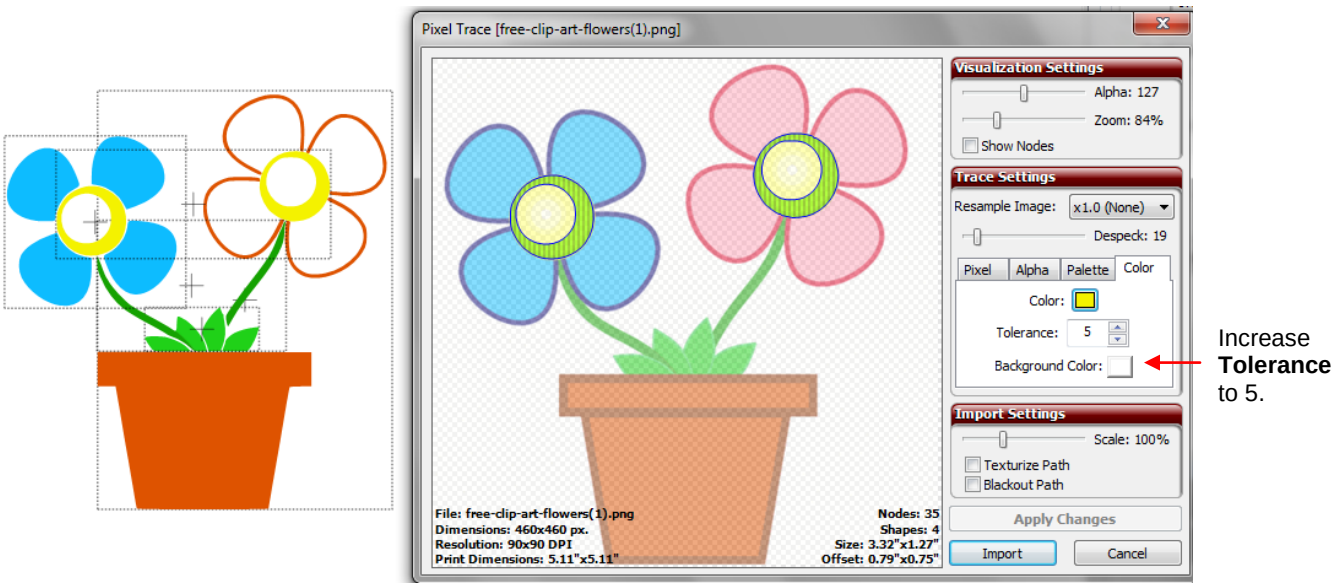
- Click on **Import,** answer **Yes** to trace more layers, and then select the stem color. Again, the **Tolerance** must be kept low in order to trace the stem only and not include the leaves in the selection:



- Click on **Import** and now repeat for the blue and pink flowers. It is decided that just the main parts of the flowers will be traced and not the darker borders around the flowers. **Shadow** layers can be created later, if desired.
- This leaves the yellow centers of the flowers. Click on the **Color** box to bring up the original raster for color selection. The centers are not one solid color, but rather radiate from an almost white color in the middle to a very dark yellow (almost brown) shade on the outside. In cases such as this, pick a shade somewhere in the middle of the color range (a darker shade of yellow, but not the darkest):

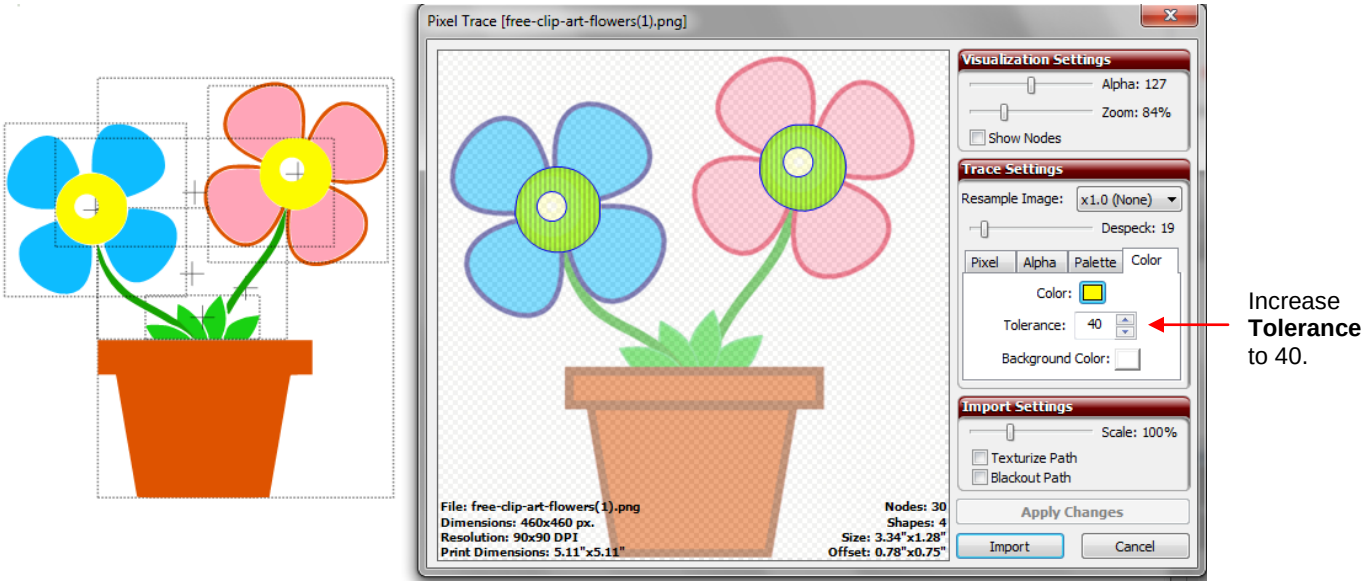

Choose Color
RGB: 227,226,7
HTML: #e3e207
Pick somewhere between the lightest and darkest shades of yellow.
Watch this box for a medium shade of yellow to appear:

- Left click on the yellow. The **Choose Color** window will close. The **Color** box will show this selected yellow color. Click on **Apply Changes**. Increase the **Tolerance** and the full outside of the yellow regions are included in the trace:



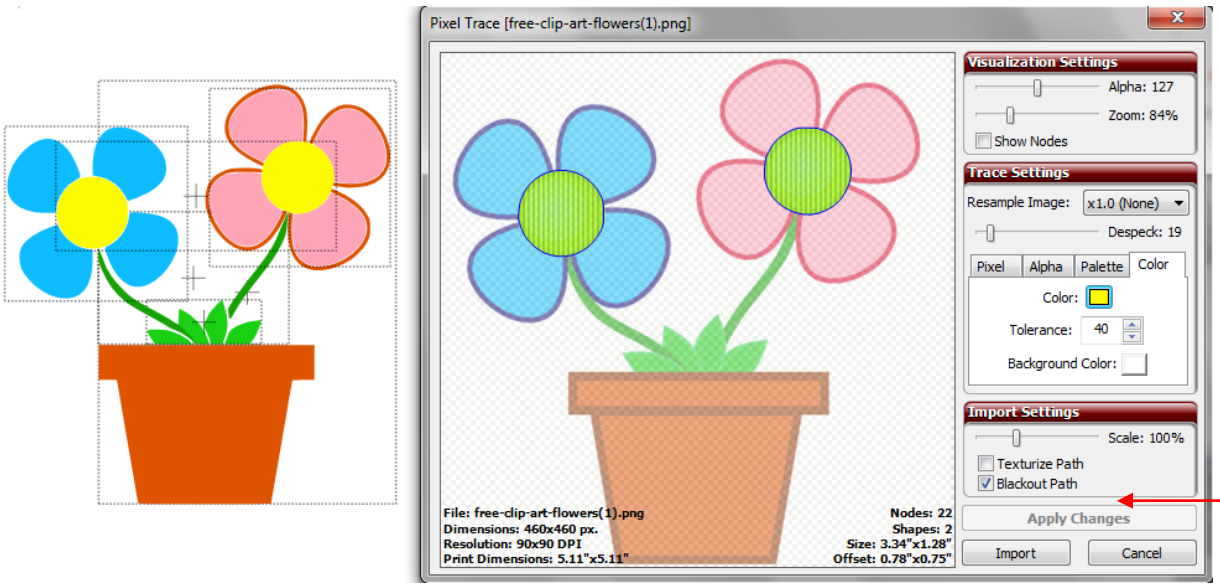
Increase **Tolerance** to 5.

- The inner circles where the color is a very pale yellow are not included. Increasing the **Tolerance** gradually reduces the sizes of those inner circles:



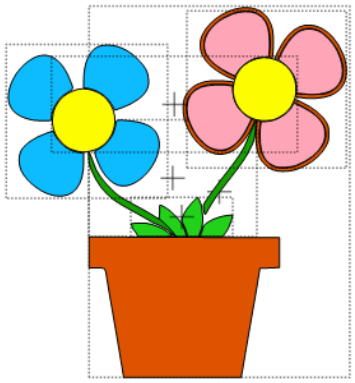
Increase **Tolerance** to 40.

- However, there's an easier way to handle those! Just mark the **Blackout Path** box and they are instantly removed from the trace:

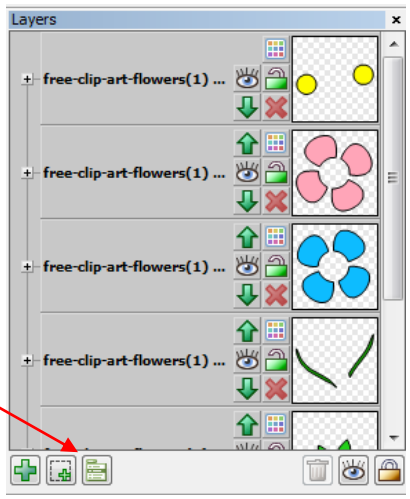


Click on **Blackout Path**

- Click on **Import** and, this time, answer **No**. The tracing part is complete



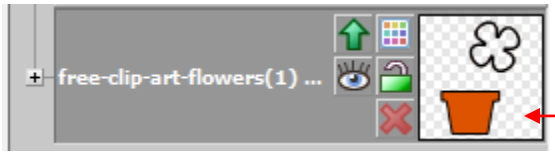
- Now for the editing. Select the tracing click on the **Layer Options Menu** icon and select **To Each Its Own**. Now the image can be edited, as needed and the colors turned on or off for cutting.



Layer Options Menu

After selecting **To Each Its Own** from **the Layer Options Menu**, each color that was traced, will have those shapes on their own layer.

- Locate the path that had the extra outside flower border traced and select that layer:



- Apply a **Ctrl+B (Break)** so that the pink flower border that was traced with the flower pot can now be selected and deleted. Then the flower is ready to cut from individual colors of paper, cardstock, vinyl, etc:

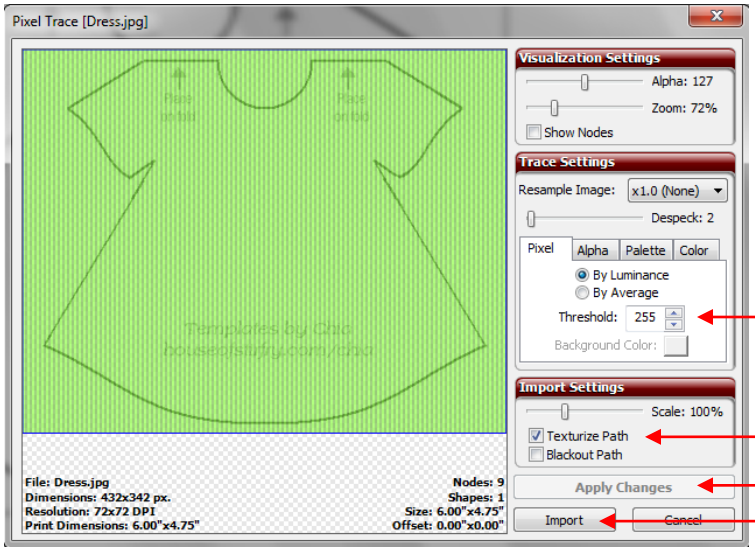
6.04 Manual Tracing

- There are two ways to manually trace an imported image in MTC:
  - ◊ Using the **Draw Freehand Lines** tool (**Pencil Tool**) (refer to *Section 7.10):* If you own a graphics tablet and enjoy freehand drawing, you may find this method workable for manual tracing. It's not covered in this tutorial because it's fairly simple to freehand draw lines and curves as presented in *Section 7.10*. But unless you have a very steady hand, your tracing will probably require considerable node editing if you want smooth curves in the final design.
  - ◊ Using the **Draw Bézier Curves and Straight Lines** tool (**Bézier** or **Pen Tool**) (refer to *Section 7.12*): Review this section and practice using the tool to draw both straight lines and curves before attempting to repeat the steps shown in the following tutorial.

Importing an Image for Manual Tracing

- Raster images can be imported using either **Pixel Trace** (refer to *Section 6.03*) or as **Texture** filling a shape (refer to *Section 3.14*). The former method will be presented here.
- Click on the **Pixel Trace** icon and browse to locate the image you want to trace. You can also scan in an image or paste an image that has been copied to the Windows Clipboard. In this tutorial, the dress image from this web site will be used:

  http://houseofstirfry.com/chia/templates/dress01.html
- Note that this dress could easily be pixel traced but because it provides a great example of how the Bezier curves can be drawn to fit a shape such as this, it will be used for the manual tracing example!
- Instead of making changes to settings in order to automatically trace the image, set the **Threshold** to 255 on the **Pixel** tab and mark the **Texture Path** box. Click on **Apply Changes** and the entire window will fill with green indicating a rectangle around the image will form the trace line:



Set **Threshold** to the maximum of 255.

Mark **Texturize Path** box.

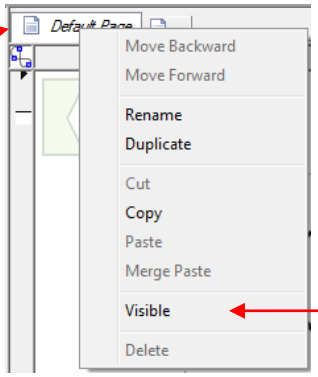
Click on **Apply Changes**.

Click on **Import.**

- Click on **Import.** Answer **No** when asked if you wish to trace more layers. The image will appear on the screen. Be sure to change your mat color to **Contrast** on the **Virtual Mat** tab (refer to *Section 3.04*) and also select either **Fill** or **Fill/Outline** so that you can clearly see the image:

- One little additional tip: when manual tracing and editing, it can often be troublesome if you inadvertently click on and select the imported image. A way around this issue is to have the import image on one page and perform the tracing on another page. But first, you want to make the imported image visible on other pages. To do this, right click on the current page containing the imported image and select **Visible**:

Right click on current page to open menu.



Click on **Visible**.

- Now click on the icon to add a new page and you will see the imported image clearly on the screen but not be able to inadvertently select it:

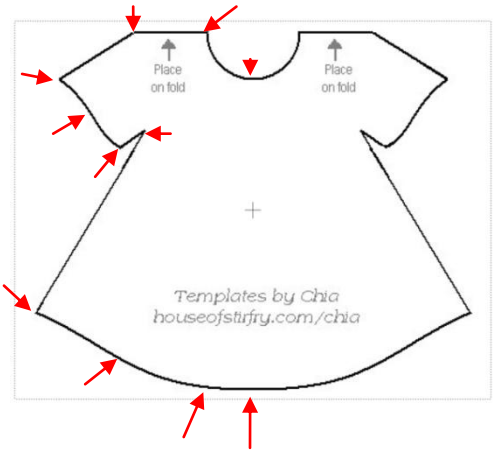
- The image will now be slightly grayed, but still distinct enough for tracing.

Manual Tracing Using the Bézier Curves and Straight Line (Pen Tool)

- As mentioned at the beginning of this section, you will want to read Section 7.12 to learn how to comfortably and successfully use **Pen Tool.**
- Now, the best method for tracing a symmetrical image is to only trace one half. Then you can make a mirror image copy and weld to the origin to create a perfectly symmetrical shape. This is what will be done in this case because the dress is symmetrical.
- Before beginning the trace, take note of how many changes in curves and straight lines exist. This will help you understand where you will be beginning and ending paths as you trace:

Trace will begin and end here moving counter- clockwise around the dress.

Red arrows indicate where a change in direction or curvature occurs and where a new path begins.

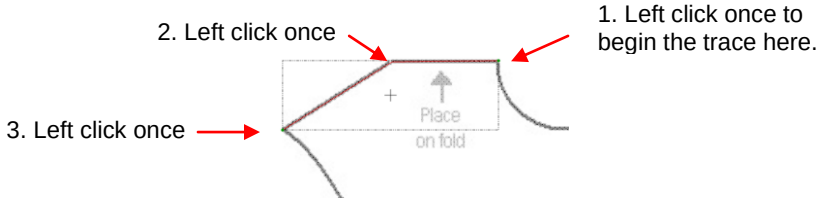


- The process guidelines are as follows:
  - ◊ Left click once to plant a node. Right click to end a segment and plant the end node.
  - ◊ A series of straight line segments can be made, one right after another, without needing to right click.
  - ◊ Curve segments must always be individually ended by right clicking before starting the next segment, whether it's another curve segment or a straight line segment. If you try to add another segment, both segments will become distorted.
  - ◊ After ending a segment, you can left click in that same spot where the last one ended to begin the next segment. The new segment will automatically connect to that last node.
  - ◊ You do not need to end a straight line segment before adding a curve segment. After left clicking to plant the last node for the straight line segment, click and hold the left mouse button at the point where that next curve segment should end and drag the mouse, as needed, to form the curve that fits the image. With the left mouse button still held down, right click to end that curve.

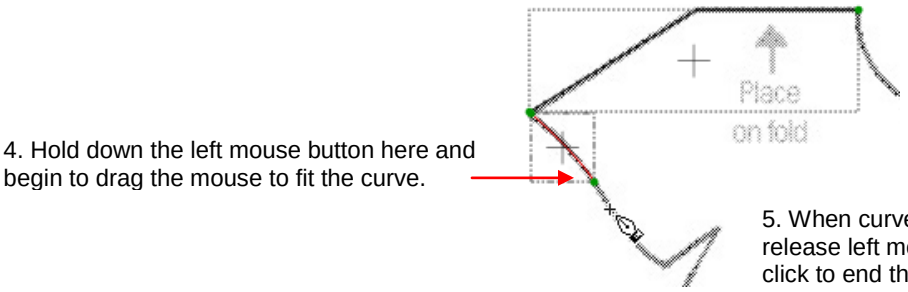
◊ When you reach the original starting point and right click on it, the shape will fill with color and you will have a closed path, in spite of starting and stopping along the way.

- Now to show this process in more detail:

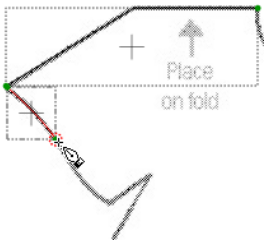
◊ Trace the straight portion as show:



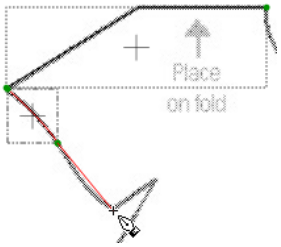
◊ Now, to do the first curve, go to the point at which the curve ends, hold down the left mouse button and drag the mouse so that the curve matches up with the dress. Then, while still holding down the left mouse button, right click to end the segment:


4. Hold down the left mouse button here and begin to drag the mouse to fit the curve.
Place on fold
5. When curve is perfect, do NOT release left mouse button until you right click to end the segment.

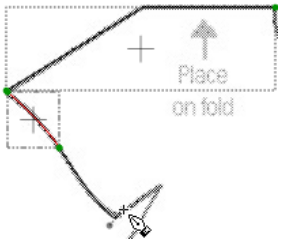
◊ Next, left click where the last curve ended, move to where curve will end, hold down left mouse button and drag to form curve. Immediately right click to end that segment:



6. Left click on top of where the last segment ended.

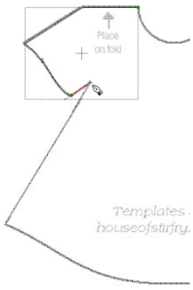


7. Hold down right mouse button at end of next segment.

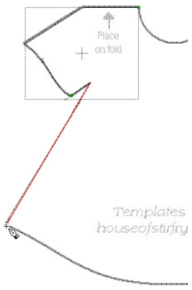


8. Drag mouse to fit curve and then right click before releasing left mouse button.

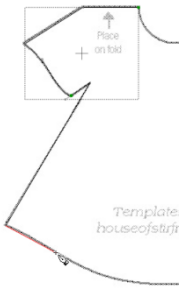
◊ Now there are two more straight line segments, so just left click at each one. Then, again, move to the end of the next curve, hold down left mouse button and drag to fit the curve and then right click to end:



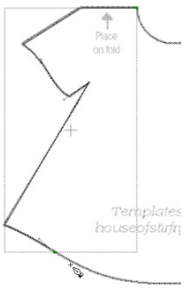
7. Left click on top of last segment end and then left click at top of inner sleeve.



8. Left click at bottom of dress.

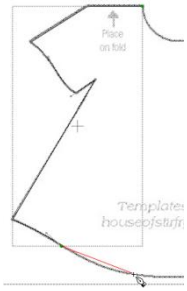


9. Hold down left mouse button and drag to fit curve of dress.

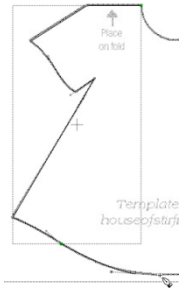


10. Right click while still holding left mouse button to end the segment.

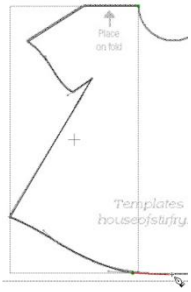
◊ Start and end another curve segment to finish bottom curve of dress. Then do another short straight segment along bottom, followed by a long segment up center of dress::



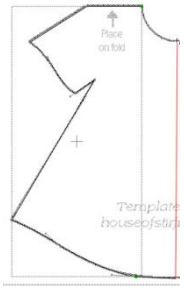
11. Left click on top of last segment end and then hold down left mouse button where curve ends.



12. Hold down left mouse button and drag to fit curve of dress. Right click to end.

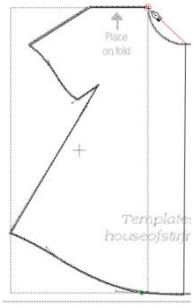


13. Left click where last segment ended and click again to finish straight part of dress bottom.

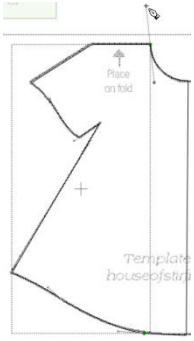


14. Left click at top of dress.

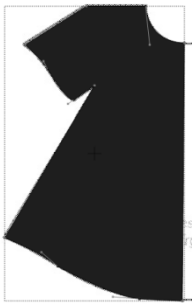
◊ Finally, hold down left mouse button at top where initial trace began. Drag mouse to create the neckline curve. While left mouse is still held down and extended out to form the curve, right click to end the segment and then release mouse button. The final right click will close the shape and the dress will fill with color:



15. Move to top and hold down left mouse button over original starting point.



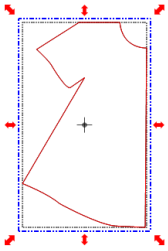
16. Drag mouse up to fit curve of dress neckline.



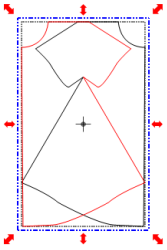
17. While still holding left mouse button down, right click to end the trace. Dress fills with color.

Flip/Mirror and Weld to Complete Symmetrical Shapes

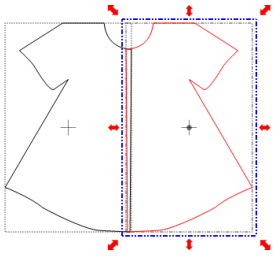
- The final step to complete the dress involves making a mirror image copy and then welding it. Select the dress and do a **Copy/Paste in Place**. Then, immediately click on the **Mirro**r tool. (If the line of symmetry were horizontal, then you would click on the **Flip** tool). Then use the arrow keys to move the symmetrical copy to overlap as desired and perform the **Basic Weld**:



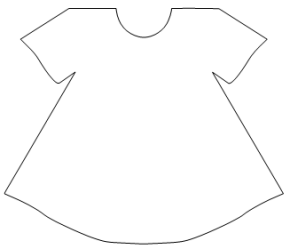
Copy dress trace and **Paste in Place**



Apply **Mirror** tool



Move copy to overlap dress trace



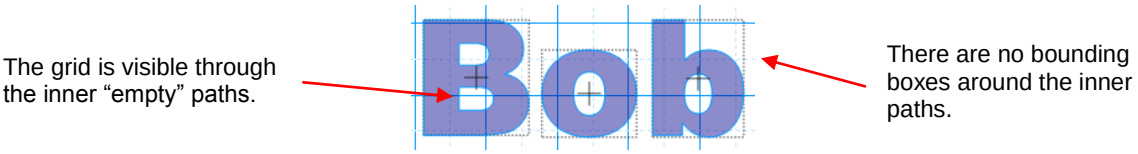
Apply **Weld** tool

7. Editing

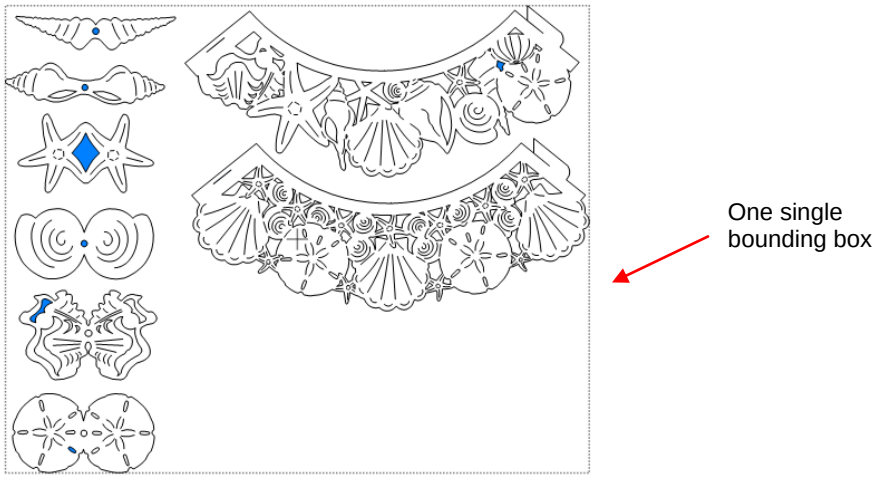
7.01 Separating and Combining Shapes

Split

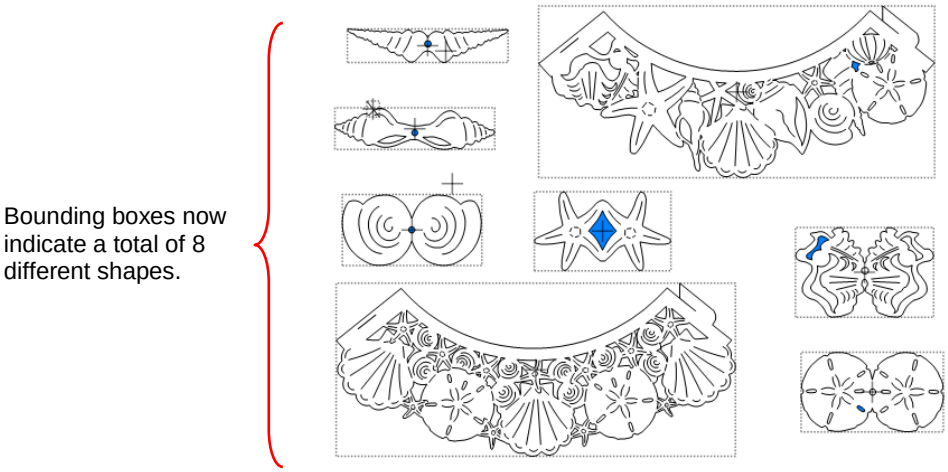
- The **Split** function is used to break up combined shapes into individual shapes, but keep inner paths joined to their respective outer paths. Sometimes the outer paths are called parent shapes and the inner paths are called child shapes.
- After selecting a combined shape, the **Split** function can be accessed in any of the following ways:
  - ◊ Click on the **Split** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+P**
  - ◊ Right click on the screen and choose **Shape Magic>Split** from the menu
  - ◊ Go to **Edit>Shape Magic>Split**.
- As was shown in *Section 5.04*, if you apply **Split** to a word such as "Bob", the child shapes inside the letters "B", "o", and "b" are still a part of the parent shapes:



- Three things will let you know that the child and parents shapes are still joined to one another:
  - ◊ There are no individual bounding boxes around the child shapes, only around the individual parent shapes.
  - ◊ You can see the grid lines of the **Virtual Mat** inside the child shapes, indicating those are empty spaces:
  - ◊ If you move one of the letters, the child shape moves with the parent shape.
- The same is true when you open a file and discover that all of the parts are combined as one shape. First apply the **Split** function to see if the file will then be broken into the combined shapes that make the most sense. For example, the following SVG file (Cupcake Seashells by Judy Keating) is imported into MTC:

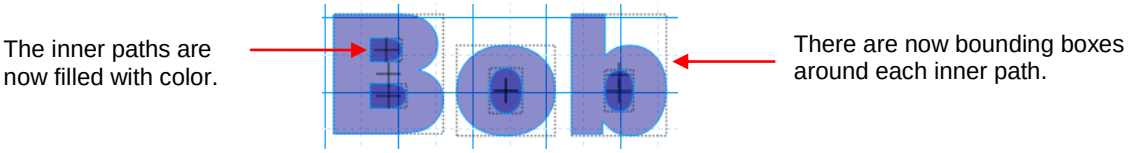


- The file imports as a single shape. But once **Split** is applied, there are 8 individual shapes which can then be individually moved, resized, re-colored, assigned to separate layers, etc:



Break

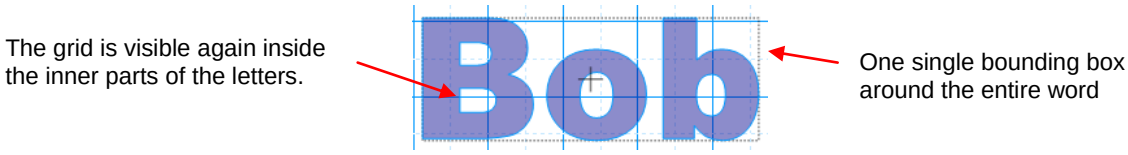
- The **Break** function is used to separate every path, every curve, and every line into its own individual shape.
- After selecting a combined shape, the **Break** function can be accessed in any of the following ways:
  - ◊ Click on the **Break** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+B**
  - ◊ Right click on the screen and choose **Shape Magic>Break** from the menu
  - ◊ Go to **Edit>Shape Magic>Break.**
- If the **Break** function is applied to the "Bob" example used in the earlier section on **Split**, the child shapes then have individual bounding boxes and they fill will color. This indicates that the child shapes are no longer joined to their parent shapes:



- Once you apply **Break**, you have complete editing control over every individual shape within a design. But be careful! It's also easy to inadvertently move an individual shape (especially the tiny ones) and you can risk messing up the design. So, only use **Break** when needed and then, most importantly, know how to rejoin your shapes, which is covered in the next section.

Join

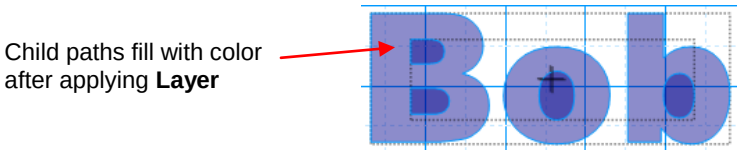
- The **Join** function is used to combine individual paths, curves, and lines into a single shape. This is basically the opposite function to **Break**.
- After selecting two or more shapes, the **Join** function can be accessed in any of the following ways:
  - ◊ Click on the **Join** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+J**
  - ◊ Right click on the screen and choose **Shape Magic>Join** from the menu
  - ◊ Go to **Edit>Shape Magic>Join.**
- If the **Join** function is applied to the "Bob" example in the above section on **Break**, the word will now become all one shape and even the individual letters can no longer be selected:



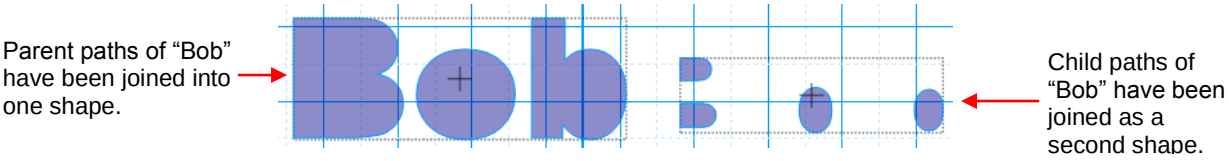
- Another reason to apply **Join** before cutting is to control the order of the cutting. A child shape, which is joined to a parent shape, will always be cut before the parent. This provides stability to the cutting. If you were to cut the other way around, where the outside parent shape is cut first, this shape would be more likely to come loose from the mat when followed by a child shape being cut.

Layer

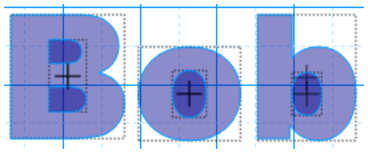
- The **Layer** function is in-between **Split** and **Break** in terms of what it does. But it can also perform a **Join** function at the same time! Follow the examples carefully.
- After selecting a combined shape, the **Layer** function can be accessed in any of the following ways:
  - ◊ Click on the **Layer** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+L**
  - ◊ Right click on the screen and choose **Shape Magic>Layer** from the menu
  - ◊ Go to **Edit>Shape Magic>Layer.**
- For example, let's use the "Bob" example above, after we applied the **Join**, which resulted in a single shape. Applying the **Layer** function will initially seem to have performed the same function as **Break**:



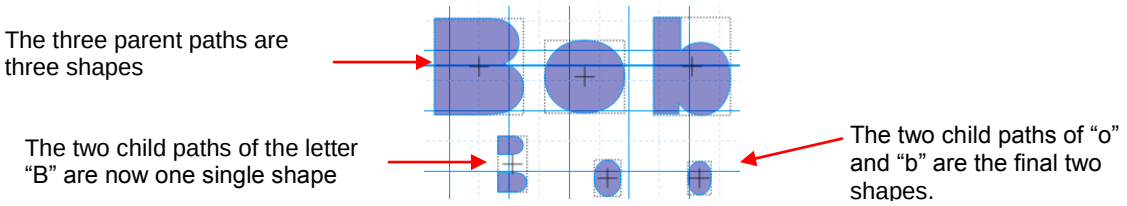
- However, the big difference is this: If you apply **Break** to "Bob", you end up with seven individual shapes (one for each outer parent shape plus one for each inner child shape). If you apply **Layer** to "Bob", you end up with only two shapes (the three outer parent paths are joined as one shape and the four inner child shapes are joined as a second shape). In this example, one shape is moved away from the other to show what makes up each of these new separate shapes:



- A different result occurs if we go back to the "Bob" example in which the word has been **Split** first and then apply **Layer**. Again, it looks similar to the results of a **Break**:

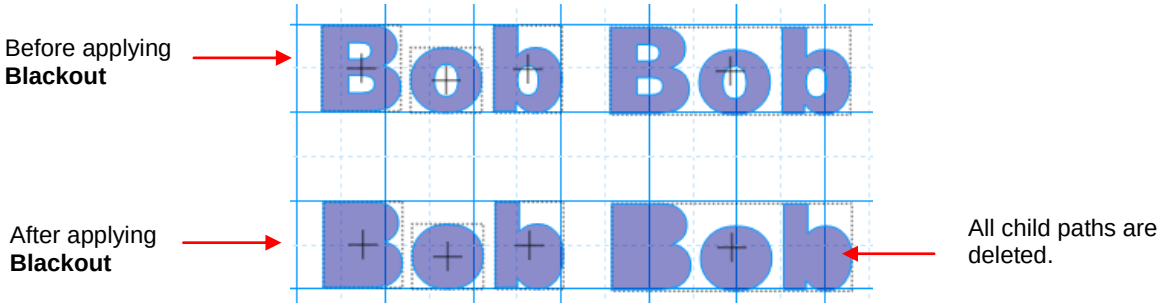


- This time, instead of getting two individual shapes, we end up with six (one for each parent path plus one for each inner set of child paths). The difference is that that two inner child paths inside the letter "B", remain joined as one shape:


The three parent paths are three shapes
The two child paths of the letter "B" are now one single shape
The two child paths of "o" and "b" are the final two shapes.

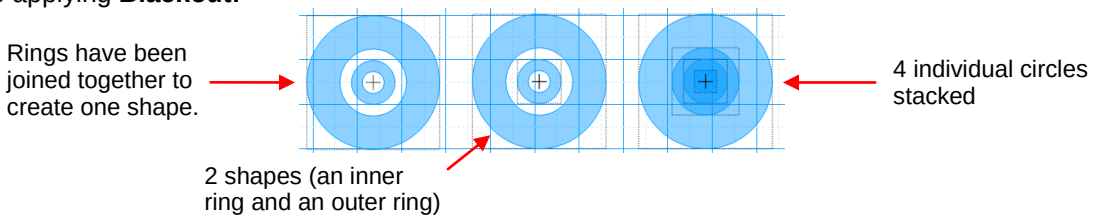
Blackout

- The **Blackout** function deletes all child paths from their parent paths.
- After selecting a shape that contains one or more child paths, the **Blackout** function can be accessed in any of the following ways:
  - ◊ Click on the **Blackout** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+R**
  - ◊ Right click on the screen and choose **Shape Magic>Blackout** from the menu
  - ◊ Go to **Edit>Shape Magic>Blackout.**
- In the prior "Bob" example, it doesn't matter if you have **Split** the text into individual letters or the text is still one shape, the same result occurs using **Blackout**. The inner child paths are deleted:

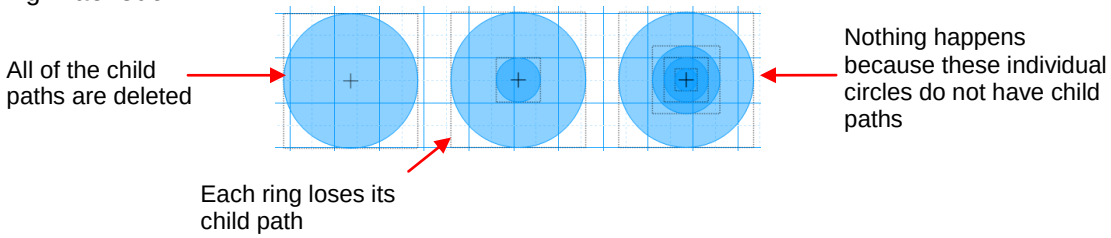


- What happens if there are nested child paths?

Before applying **Blackout:**


Rings have been joined together to create one shape.
4 individual circles stacked
2 shapes (an inner ring and an outer ring)

After applying **Blackout**:


All of the child paths are deleted
Nothing happens because these individual circles do not have child paths
Each ring loses its child path

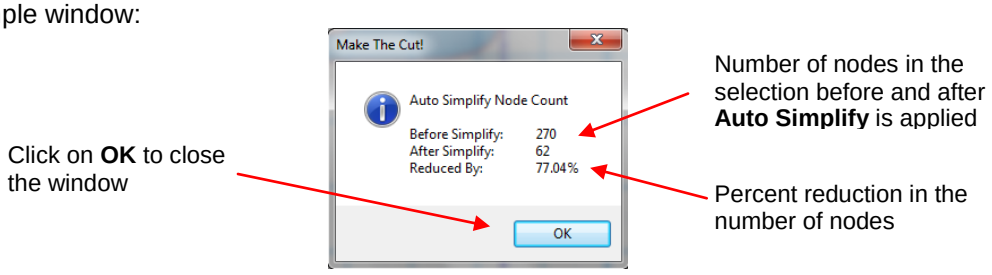
7.02 Shape Magic Advance Part 1: The Simplify Functions

Auto Simplify Welds

- The **Auto Simplify Welds** function is an on/off feature which should be turned on when MTC is installed. Its purpose is to continuously reduce the number of nodes after other functions are applied, so that a design will cut smoothly and quickly to a cutter.
- **Auto Simplify Welds** can be accessed in the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Auto Simplify Welds**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Auto Simplify Welds** from the menu
  - ◊ Go to **Edit>Shape Magic> Advanced>Auto Simplify Welds.**
- Most of the time, this function can be left on. However, if you are extensively editing an image, such as using the **Eraser** function over and over on the same selected shape, then it may be necessary to turn off this feature. Repeated applications of the **Auto Simplify Welds** will begin to distort the shapes. So, as recommended in later sections of this chapter, turn it off, and then the following **Auto Simplify Path** can be applied once the editing is completed.

Auto Simplify Path

- The **Auto Simplify Path** function can be applied when you have turned off **Auto Simplify Welds**. Select the shape(s) and then invoke **Auto Simplify Path** in any of the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Auto Simplify Path**
  - ◊ Press **Ctrl+Shift+Z**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Auto Simplify Path** from the menu
  - ◊ Go to **Edit>Shape Magic>Advanced>Auto Simplify Path.**
- The function will be automatically applied and a window will open indicating the results of the simplification. Here is a sample window:


Make The Cut!
Auto Simplify Node Count
Before Simplify: 270
After Simplify: 62
Reduced By: 77.04%
OK
Click on **OK** to close the window
Number of nodes in the selection before and after **Auto Simplify** is applied
Percent reduction in the number of nodes

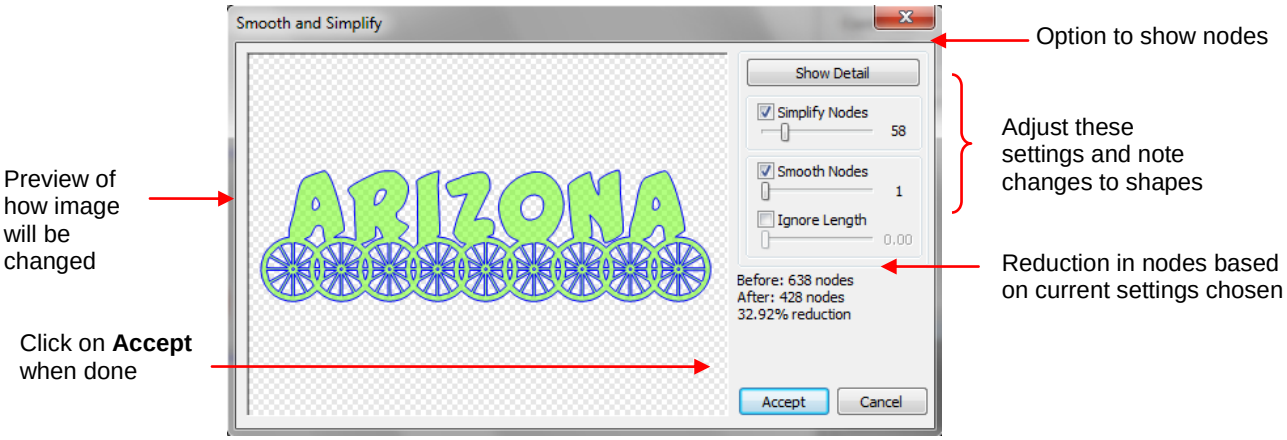
- If not enough nodes are deleted, then try temporarily decreasing the size of the shape. Use the scaling method shown in *Section 3.13* to reduce the size of the shape to, say, 25 %. Apply the **Auto Simplify Path** function. Then resize using the reciprocal, 25%r, to return to the original size.

Smooth & Simplify

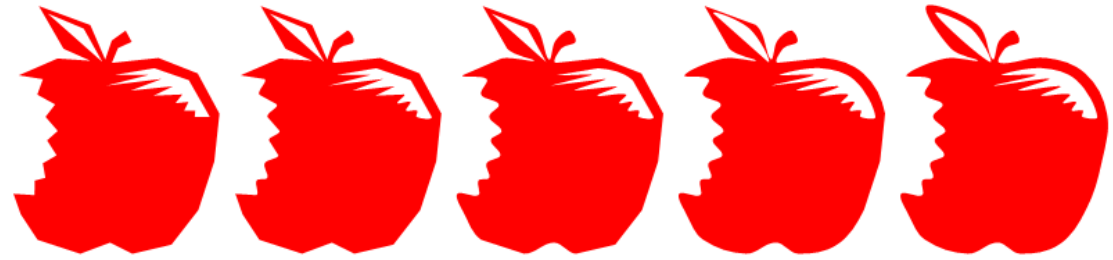
- The **Smooth and Simplify** function is a manual version of the **Auto Simplify Path** function in which you can choose how much simplifying will be applied. Select the shape and then open the **Smooth & Simplify** window in any of the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Smooth & Simplify**
  - ◊ Press **Ctrl+Shift+J**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Smooth & Simplify** from the menu

◊ Go to **Edit>Shape Magic>Advanced>Smooth & Simplify**.

- The following window opens with settings which can be adjusted as desired. Adjustments will be reflected in the preview so that distortions of the image can be avoided:



- The **Ignore Length** option can be used to control the amount of smoothing applied to an image. For example, in the following image of a very angular apple, the higher the setting for **Ignore Length**, while holding **Smooth Nodes** at a constant value, the more rounding of the shape:



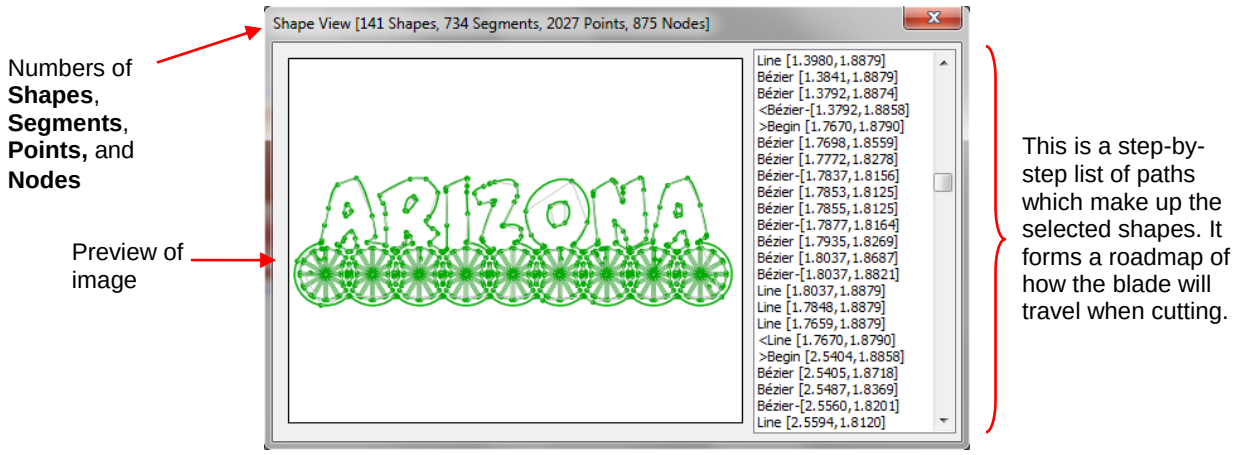
Original Shape | Ignore Length: 0.15 | Ignore Length: 0.36 | Ignore Length: 0.43 | Ignore Length: 0.71

- In general, the **Smooth and Simplify** function is not used because of the two easier functions (**Auto Simplify Welds** and **Auto Simplify Path**) which were both added to MTC after this function was introduced.
- If Simplify Nodes doesn't reduce the nodes significantly, then try reducing the size of the image, as described at the end of the **Auto Simplify Path** section.

7.03 Shape Magic Advance Part 2: Details

View Path Detail

- The **View Path Detail** function is used to provide information about the selected shape or shapes. It can be accessed in the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **View Path Detail**
  - ◊ Press **Ctrl+Shift+X**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>View Path Detail** from the menu
  - ◊ Go to **Edit>Shape Magic>Advanced>View Path Detail**.
- Once selected, the following window opens:



Nodes on Mat

- The **Nodes on Mat** function is an on/off feature which will be turned off when MTC is first installed. When turned on, the nodes on all shapes will be shown on the screen:

Nodes On Mat turned off

Nodes On Mat turned on

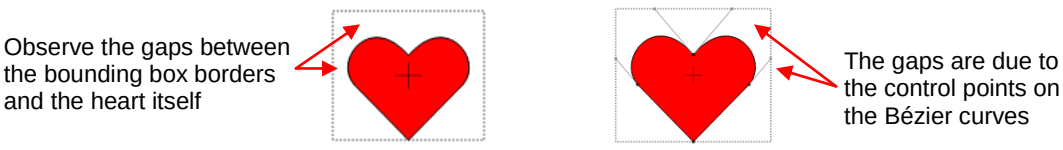
- **Nodes On Mat** can be accessed in the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Nodes On Mat**
  - ◊ Press **Ctrl+Shift+I**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Nodes On Mat** from the menu
  - ◊ Go to **Edit>Shape Magic>Advanced>Nodes On Mat.**

7.04 Shape Magic Advance Part 3: The Path Functions

Flatten Paths

- The **Flatten Paths** function removes all Bézier curves from a shape. It is very seldom used because other functions perform it automatically as needed. The one time you might need it is when resizing a bounding box that extends beyond the boundaries of a shape. The **Flatten Paths** feature will resize a bounding box to align with the true width and height of the image.

- For example, import the **Heart 1** shape from the **Generic** folder in **Basic Shapes**:



- These gaps do not pose a problem except in some circumstances, such as:

- ◊ If you are trying to align the top, left, or right sides of this heart with another shape or shapes. Because of the gaps, you wouldn't be able to use the alignment functions from *Section 3.15,* with the exception of the bottom alignment.
- ◊ If you needed the heart to be a specific size, for example, exactly 1" in height. The bounding box for this heart is 1" tall, but clearly the heart is significantly shorter than that.

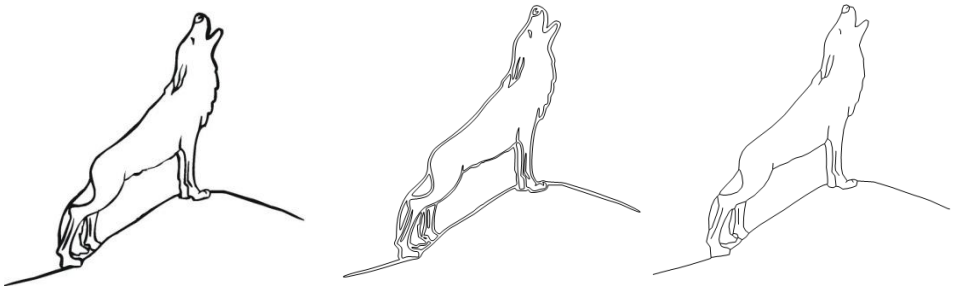
- To refit a bounding box, select the shape and then the **Flatten Paths** function can be applied in any of the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Flatten Paths**
  - ◊ Press **Ctrl+Shift+F**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Flatten Paths** from the menu
  - ◊ Go to **Edit>Shape Magic> Advanced>Flatten Paths**.
- The heart now appears with the bounding box aligned:

- Because the **Flatten Path** command adds a substantial number of nodes, it is advisable to follow up this function with the **Auto Simplify Path** function presented in *Section 7.02.*

Thin Paths

Video

- The **Thin Paths** function is used to convert a shape into a single line or curve. This is useful in rhinestone designing for converting thin fonts into single line fonts. It can also be used after tracing a black and white line image (aka coloring book image) such as this wolf image:



Original image | Shape after **Pixel Trace** | Shape after **Thin Paths**

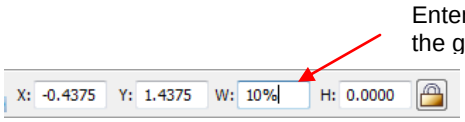
- After selecting the shape, **Thin Paths** can be applied in any of the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Thin Paths**
  - ◊ Press **Ctrl+Shift+K**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Thin Paths** from the menu
  - ◊ Go to **Edit>Shape Magic> Advanced>Thin Paths.**

Fuse n' Weld

- The **Fuse n' Weld** function is used to remove duplicate shapes in the same path and also join nodes together that are on top of one another. This is mostly commonly used when importing certain file formats in which there can be hundreds of small disconnect paths making up the shape.

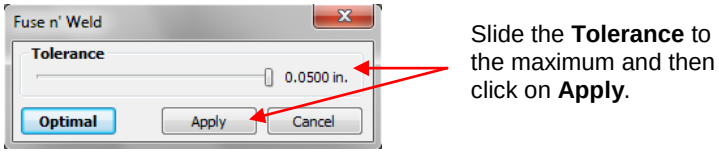
- As an example, let's say we have several disconnect straight lines paths:

- To connect these, we need to first make sure the gaps are very small. To that, we will select the line segments and resize to say 10% using the method shown in *Section 3.13*. In other words, make sure the **Aspect Ratio** is locked and type in 10% in the **W**: setting box:



- Once the line is resized, click on the **Join** icon on the **Shape Magic** toolbar to join the segments and then the **Fuse n' Weld** function can be applied in any of the following ways:

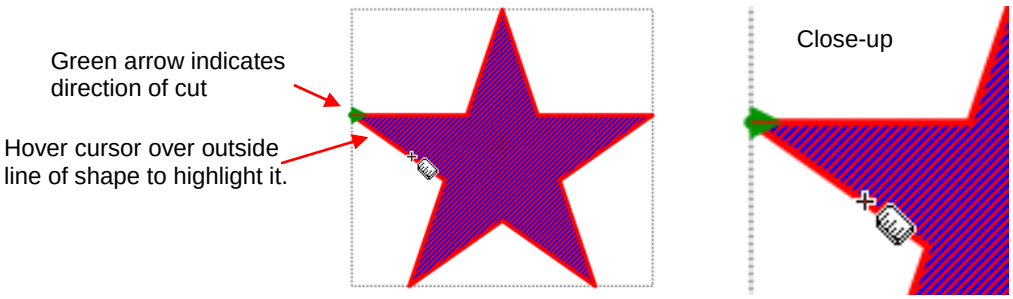
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Fuse n' Weld**
  - ◊ Press **Ctrl+Shift+M**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Fuse n' Weld** from the menu
  - ◊ Go to **Edit>Shape Magic> Advanced>Fuse n' Weld**.



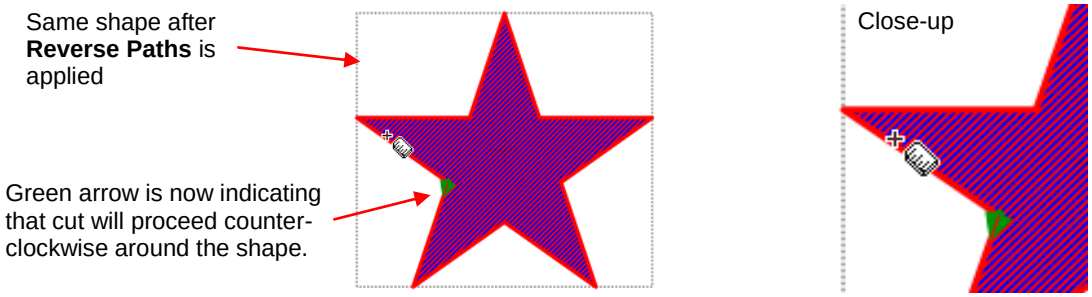
- For closing tight gaps, such as in this case, slide the **Tolerance** to the maximum and click on **Apply**.
- To resize the selection, type in 10%r into the **W:** setting, so that the reciprocal will be applied and the line will be resized to its original width.

Reverse Paths

- The **Reverse Paths** function is used to change the direction of a cut. This is not a commonly used function but can sometimes fix cutting issues with some files.
- To see the direction of a cut, press **F8** to open the **Measure Tool** on the **Node Mode** toolbar. Move your mouse over a shape and it will fill with stripes. A green arrow will point in the direction of the cut. In the following example, the cut will proceed counterclockwise around the shape:



- **Reverse Paths** can be accessed in any of the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Reverse Paths**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Reverse Paths** from the menu
  - ◊ Go to **Edit>Shape Magic> Advanced>Reverse Paths**.
- Applying **Reverse Paths** to the above example will cause the arrow to now point downwards and the cut will proceed clockwise around the shape:

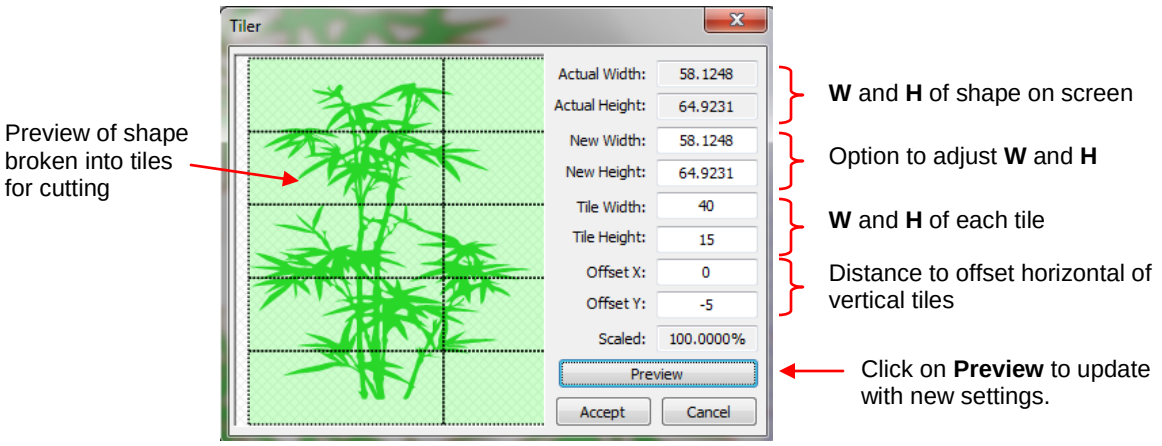

Same shape after **Reverse Paths** is applied
Green arrow is now indicating that cut will proceed counter-clockwise around the shape.
Close-up

- Refer to *Section 7.08* for additional uses for the **Measure Tool**.

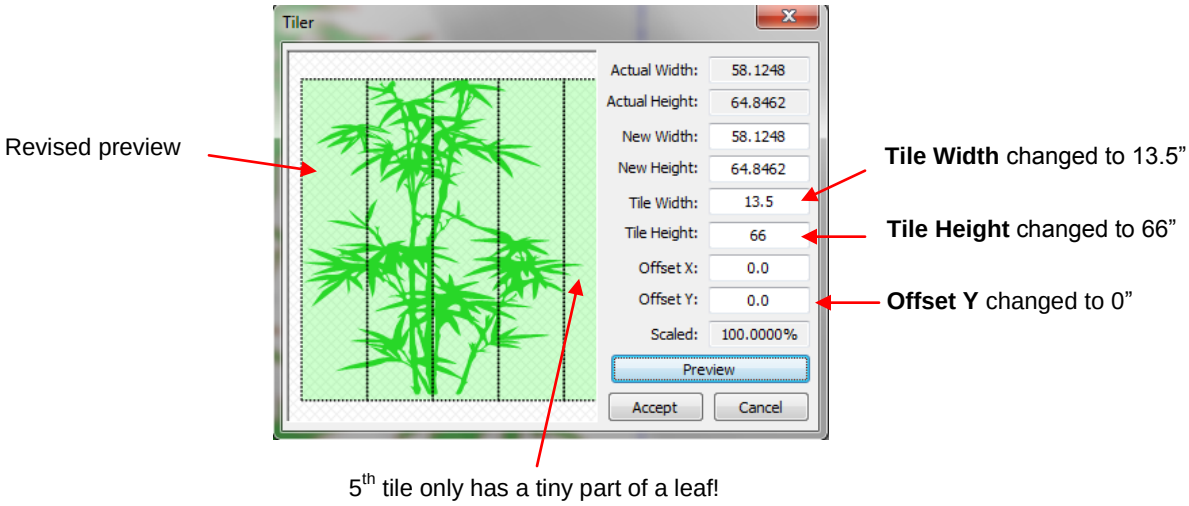
7.05 Shape Magic Advance Part 4: Tiler

- The **Tiler** function is used to split a shape or selection of shapes into smaller sections for cutting.
- For example, you may have a large design, such as the bamboo below, that you would like to cut from vinyl for a wall in your home. The overall size of the design has been set to ~58". However, the vinyl you've purchased is only 15" in width.

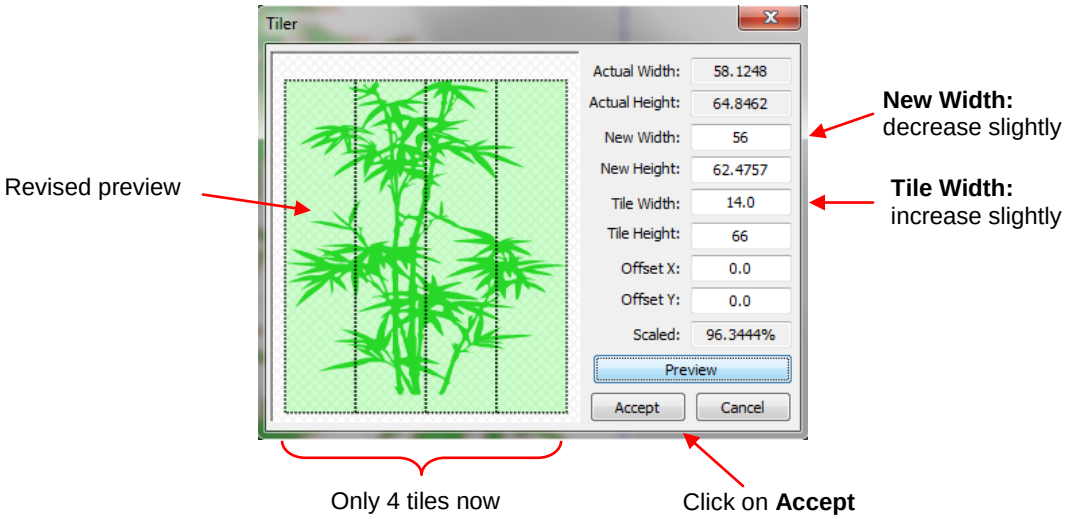
- After selecting the shape, the **Tiler** function can be accessed in the following ways:
  - ◊ Click on the **Advance** icon on the **Magic Toolbar** and select **Tiler**
  - ◊ Press **Ctrl+Shift+N**
  - ◊ Right click on the screen and choose **Shape Magic>Advanced>Tiler** from the menu
  - ◊ Go to **Edit>Shape Magic> Advanced>Tiler.**
- The following window will open with a set of default settings:



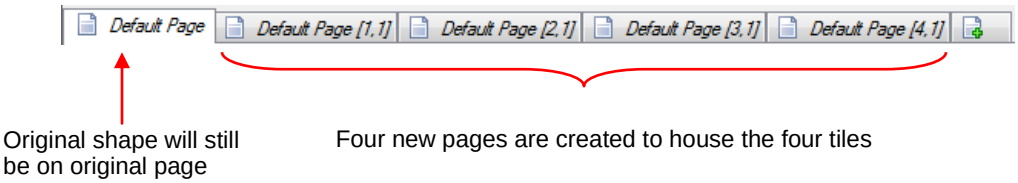
- Only the **Tile Width** must be set to something less than 15” since the Zing can handle 14” wide cutting. For this example, the **Tile Width** will be set to 13.5”. The Zing can also cut long sections of vinyl at one time, so the **Tile Height** will be set slightly larger than the height of the shape. Also there is no need to have an **Offset** yet, so it is set to 0:



- Everything looks fine except for the last tile in which there’s only a fraction of a leaf. This wouldn’t be an economical use of the vinyl. Thus, the settings could be adjusted just a slight amount so that only four tiles will be cut instead of five. There are several options: 1. The **Actual Width** of the image could be made slightly smaller, 2. The **Tile Width** could be made slightly larger, or 3. A combination of both:



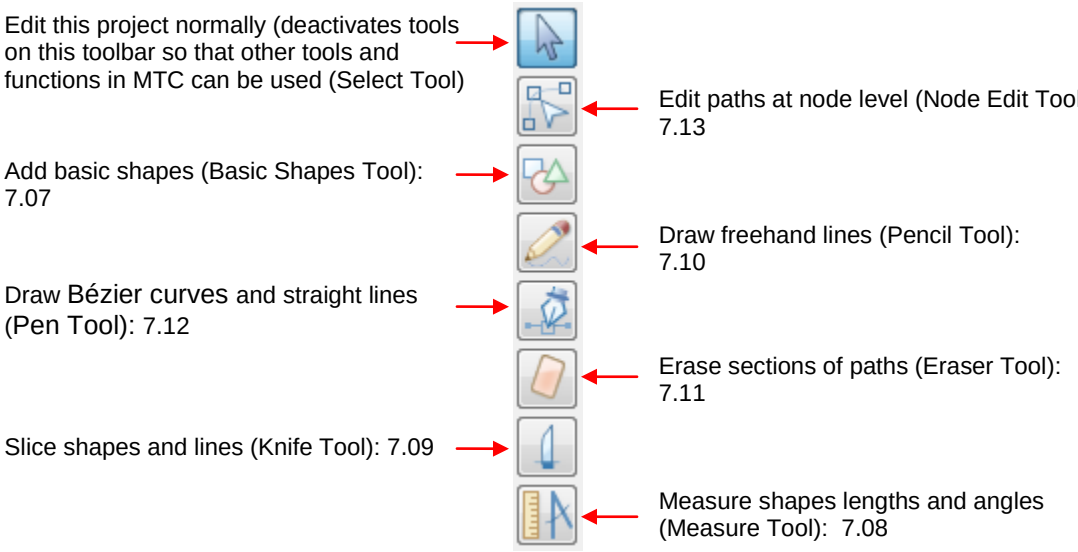
- The individual tiles are placed on new **Pages** on the **Page Bar:**


Default Page
Default Page [1,1]
Default Page [2,1]
Default Page [3,1]
Default Page [4,1]
Original shape will still be on original page
Four new pages are created to house the four tiles

7.06 Node Mode Toolbar

- The **Node Mode Toolbar** offers tools to use for editing shapes, drawing lines and curves, importing from the **Basic Shapes** library, and a number of other functions. This toolbar can be activated in any of the following ways:
  - ◊ Click on the icon in the upper left region of the screen as show in *Section 4.01*.
  - ◊ Press **F1** or **W**
  - ◊ Go to **View>Node Mode.**

- The **Node Mode Toolbar** appears along the left side of the screen. The following screenshot shows the function of each tool and section number detailing this tool:


Edit this project normally (deactivates tools on this toolbar so that other tools and functions in MTC can be used (Select Tool)
Edit paths at node level (Node Edit Tool): 7.13
Add basic shapes (Basic Shapes Tool): 7.07
Draw freehand lines (Pencil Tool): 7.10
Draw Bézier curves and straight lines (Pen Tool): 7.12
Erase sections of paths (Eraser Tool): 7.11
Slice shapes and lines (Knife Tool): 7.09
Measure shapes lengths and angles (Measure Tool): 7.08

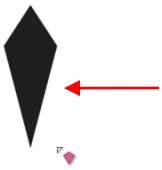
7.07 Add Basic Shapes (Basic Shapes Tool)

- The **Add Basic Shapes** function (**Basic Shapes Tool**) is the 3rd icon on the **Node Mode Toolbar** and can be activated by clicking on the icon or pressing **F3**.
- This tool will access the same library of shapes found on the **Import Toolbar,** with the exception of the "**Your Shapes**" category. However, instead of double-clicking on a shape to automatically place that shape on the screen, this function allows you to hold down the left mouse button and freely drag the shape to the size you need. In this example, the kite shape from the **Polygons** category has been selected:

Begin dragging mouse from top left towards bottom right. Note that cursor icon looks like the chosen shape.
Cursor will jump to bottom left and shape will be drawn.

- Holding the **Ctrl** key while dragging to create the shape will release the **Aspect Ratio**, allowing you to make the shape thinner or wider relative to the height, as you desire. You may need to adjust **Snap Position** on the **Virtual Mat** tab:

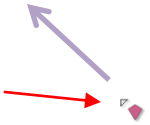
With **Ctrl** key held, shape can be drawn shorter and wider…



… or shape can be drawn taller and thinner

- Dragging from the bottom upwards (rather than from the top downwards) will automatically vertically flip the basic shape on the screen.

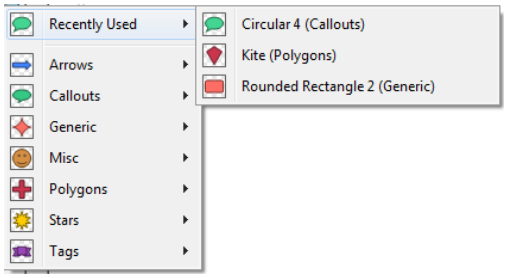
Begin dragging mouse from bottom right toward top left .



Shape is drawn vertically flipped

- Upon releasing the left mouse button, you may immediately begin drawing another of the same shape.
- This function also tracks your most recently used shapes and provides a list of them within the menu:

Recently Used shapes appears at the top of all categories instead of **Your Shapes**



Your most recently used **Basic Shapes** are easily accessed

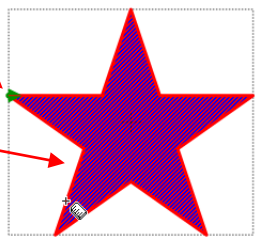
7.08 Measure Shape Lengths and Angles (Measure Tool)

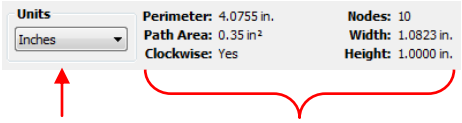
- The **Measure Shape Lengths and Angles** function (**Measure Tool**) is the 8th icon on the **Node Mode Toolbar** and can be activated by clicking the icon or by pressing **F8**. It is used to obtain properties and details about any shape, including internal paths within that shape.
- In this example, the **Measure Tool** is used to note differences between these two stars:

- Click on the **Measure Tool** icon and the mouse cursor becomes a ruler. Hover the cursor along the side of one of the shapes. The shape will fill with stripes and the top of the screen will show the properties of that shape, which include **Perimeter** (distance blade will travel), Path Area, **Cut Direction,** number of **Nodes,** and the bounding box dimensions of the shape (**W** and **H** which should match those you see in the **Sel. Properties Bar** when you are no longer in **Node Mode**).

Small green arrow indicates direction of cutting

Move cursor over outside line of shape to bring up properties

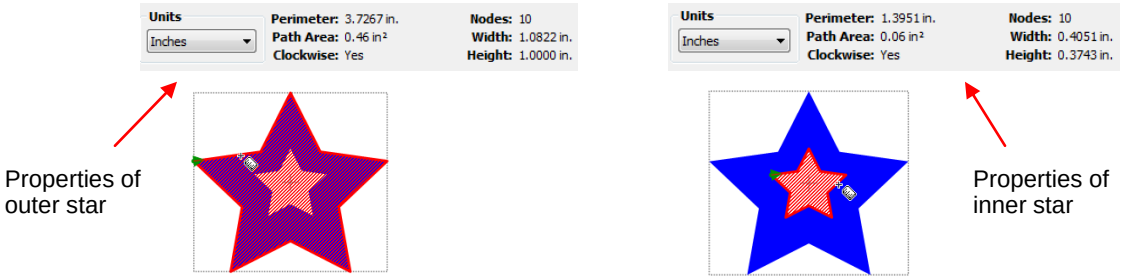




Option to show size in inches, cm, or mm

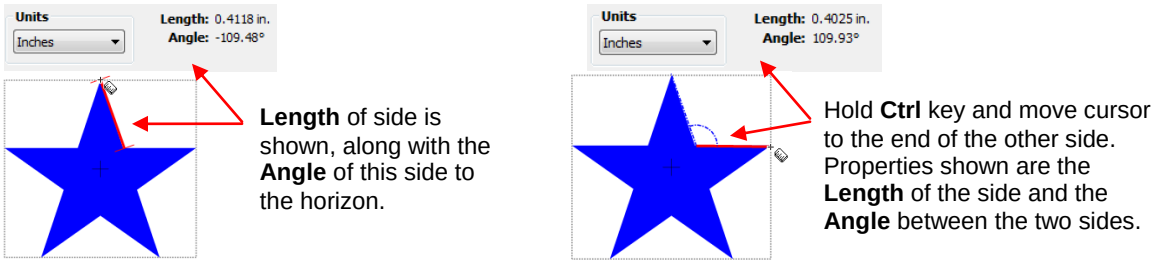
Properties of the highlighted part of shape.

- Likewise, when you hover the cursor over an outer side of the other star, the solid area of the star will fill with stripes and the properties of the outer star will be displayed. If you hover the cursor over the inner star, then the properties of that star will be displayed instead:



- Note that the **Path Area** of the outer star includes the area of the inner star. It does not subtract out that part of the shape. This makes sense with regards to cutting since the same amount of material would be needed to cut the outer star, regardless of whether or not the inner star were cut. If, for any reason, you needed the actual area of the larger star, then you could subtract the **Path Area** of the inner star from that of the outer star.

- To measure an angle, place the cursor at the point where the two sides of the star meet and drag outwards along one of the sides. The length and the angle of this side to the horizon are displayed. Then hold the **Ctrl** key and bring the mouse cursor down to the outer tip of the other side. The length of this side and the angle relative to the other side are now displayed:

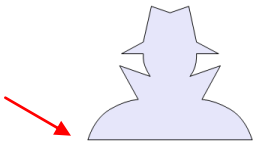

Units
Inches
Length: 0.4118 in.
Angle: -109.48°
Length of side is shown, along with the Angle of this side to the horizon.
Units
Inches
Length: 0.4025 in.
Angle: 109.93°
Hold Ctrl key and move cursor to the end of the other side. Properties shown are the Length of the side and the Angle between the two sides.

- Similarly, the **Angle** of the other star can be measured and then the full list of properties compared between the two stars:

7.09 Slice Shapes and Lines (Knife Tool)

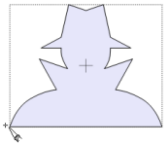
- The **Slice Shapes and Lines** function (**Knife Tool**) is the 7th icon on the **Node Mode Toolbar** and can be activated by clicking on the icon or pressing **F7**. It is used to cut an existing shape or shapes along straight lines or freely drawn paths.
- For example, let's use the Secret Agent Man shape from the **Basic Shapes** library. Let's say you want to remove the bottom of the shape so that when cut, the shape would still be attached to the material and could be folded up:

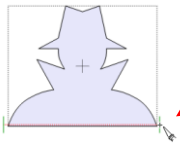
The **Knife Tool** will be used to remove the bottom line of this shape.



- To slice off just the bottom of the shape, select the **Knife Tool** and hold down the mouse button outside of the shape on one side, just barely above the bottom of the shape and then drag the mouse over to the other side, letting go once the cursor is outside of the shape:

Begin cutting just outside of and above the bottom the shape.

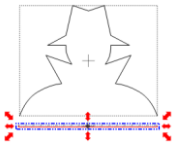




Drag the mouse to the other side and let go when the cursor is beyond the shape border.

- Then click on the **Select Tool** (**Edit this project normally**) at the top of the **Node Mode Toolbar**. Now you can select and move the cut line away from the bottom of the shape and delete. The shape no longer has a connecting line along the bottom:

Drag bottom line away and delete.



Shape is open at the bottom.

7.10 Draw Freehand Lines

- The **Draw Freehand Lines** function (**Pencil Tool**) is the 4th icon on the **Node Mode Toolbar** and can be activated by clicking on the icon or pressing **F4**. This tool is used to freely draw thin or thick lines with your mouse or tablet, or even draw dashed lines or a path of circles! Your shapes can then be edited using the other tools on the **Node Mode** toolbar, as well as customized using other functions in MTC.

Drawing Thin Lines

- There are a number of settings which will affect the outcome of your drawing. **Smoothing** is used to control whether the drawing is more angular (made up of straight lines paths) or rounder (made up of curves). **Precision** is used to control the number of nodes used as the image is drawn. The **Force Closed** option, when marked, will automatically close the beginning and the end of the path as you draw:

Increase **Smoothing** for curves

Mark **Force Closed** to close the path

Increase **Precision** for more detail

- For example, if you are freehand drawing the letter “A”, you would want to decrease **Smoothing** and **Precision** so that straight lines are drawn. But if the same low settings were used to draw an “S”, the letter would end up angular and not well-formed:

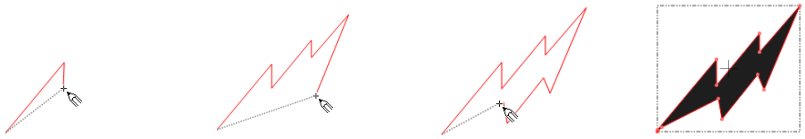
- For a curve, such as an “S”, you would want to increase **Smoothing** so that no straight lines are formed:

- The **Precision** setting, as mentioned before, allows a more precise “S” to be drawn, but many more nodes will result. The following shows the difference when **Precision** is left at 0 versus 100% versus 50%:

Precision: 0% Precision: 100% Precision: 50%

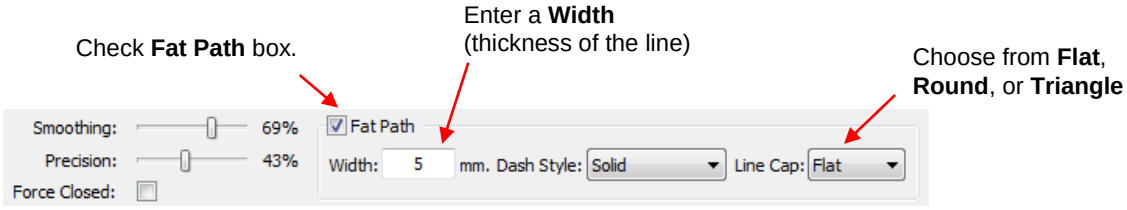
- If you need to draw a perfectly straight line, hold the **Ctrl** key while drawing:

- The **Force Closed Path** option can be marked so that, as you draw an image, the start and end will always be connected. For example, in this freehand drawing of a lightning bolt, the end of the line is always connected back to the beginning. Once the cursor returns to where it started, the shape will close and fill with color (assuming **Fill** is turned on):

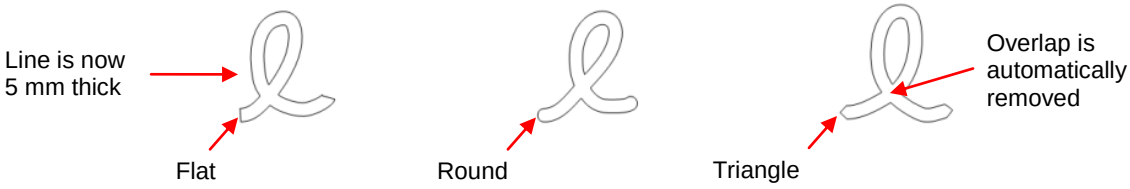


Drawing Thick Lines

- To draw a line that is set to a particular thickness, mark the **Fat Path** box and enter settings for thickness and **Line Cap** style:

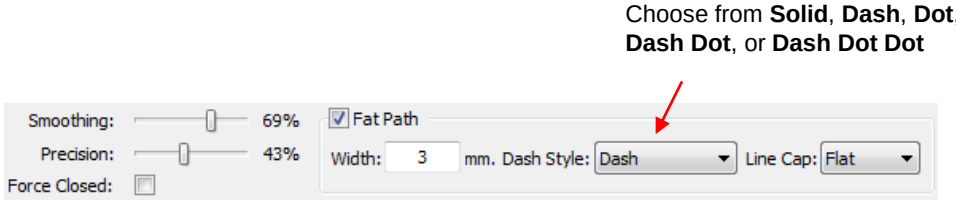


- When you freely draw with **Fat Path** selected, the line will be the thickness you selected. Note that when you cross the path, the overlap will be automatically removed. Also note the differences in the three **Line Cap** options:

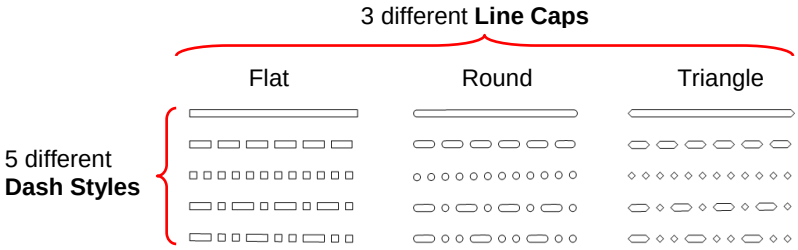


Drawing with Other Line Styles

- The Freehand Drawing Tool offers other line styles besides solid lines, including dashes, circles, and combinations of the two:



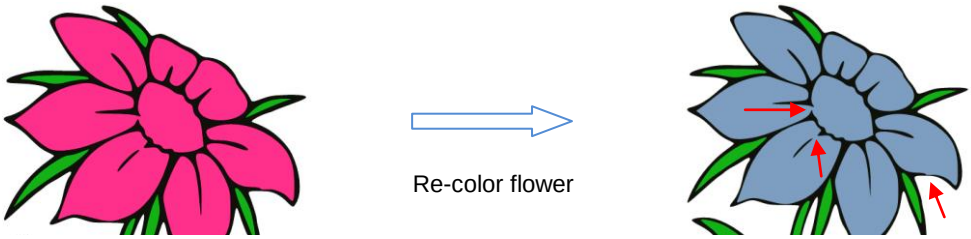
- Note that the **Line Cap** style option also works in combination with the **Dash Style** options to produce even more options:



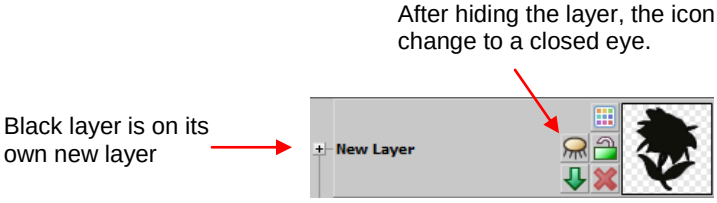
7.11 Erase Sections of Paths (Eraser Tool)

Erasing

- The **Erase Sections of Path** function (**Eraser Tool)** is the 6th icon on the **Node Mode** toolbar and can be activated by clicking the icon or by pressing **F6**.
- Use this tool to erase parts of a shape as well as adding to a shape. To erase, drag the left mouse button and the shapes beneath that drawn path will be deleted. For a straight line erasure, press the **Ctrl** key while dragging your mouse.
- Important! Before using the **Eraser** tool for extensive changes to an image, turn off **Auto Simplify Welds**. Otherwise, the shape will begin to lose its form as the simplify process is applied repeatedly. To do this, right click on the screen and choose **Shape Magic>Advanced>Auto Simplify Welds** from the menu (or refer to *Section 7.02* for the other methods). Then, after you have finished using the **Eraser** tool, apply either the **Auto Simplify Path** or **Smooth and Simplify** functions to reduce the number of nodes for smoother cutting. Again, refer to *Section 7.02*.
- The flower that was traced in *Section 6.03* will be used to illustrate the **Eraser Tool**. The flower will be re-colored blue so that the red eraser lines, in the screenshots, will be easier to see in this user manual. The arrows indicate the areas that need to have some of the blue layer erased:

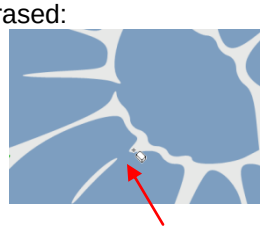


- When using the **Eraser Tool**, all layers will be erased in the location where the eraser is applied. So, to avoid erasing the black layer when erasing the blue, the black layer needs to be hidden. Select that layer and press the **Selection to Own Layer** icon at the bottom of the **Layer Bar**. Then hide the black layer by pressing the **Hide Layer** icon

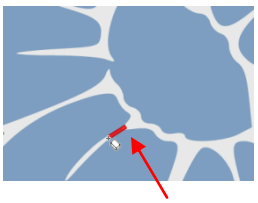


- Zoom in close so that you'll be able to see exactly where you need to erase. When you activate the **Eraser Tool**, the following settings will appear at the top of the screen:

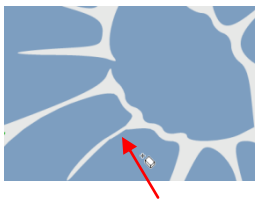
- Hold down the left mouse button and drag the mouse in a small line where you want to erase. A red line will be drawn and, when you release the mouse button, the portion of the shape beneath that red line will be erased:



Shape needs to be erased so that this petal matches the others

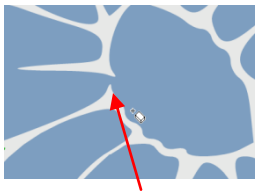


Drag mouse along path to be erased. A red line will appear as you drag.

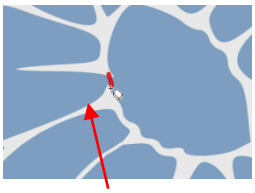


Release mouse and path under the red line is erased.

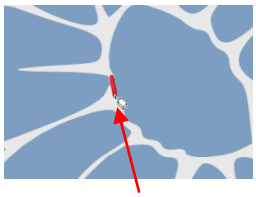
- If the line was too thick and you erased more than you wanted, then use the **Undo** button (or **Ctrl+Z**) to back up a step. Then enter a smaller **Erase Size**. If not enough was erased, then increase the **Eraser Size** and go over your path again with the thicker eraser.
- Apply the **Eraser** tool to the other two areas of the yellow petals. In the next example, one of the petals needs to be separated from the center of the flower:



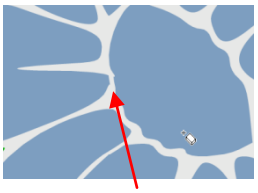
Petal is connected to center of flower.



Eraser Tool is used to disconnect.

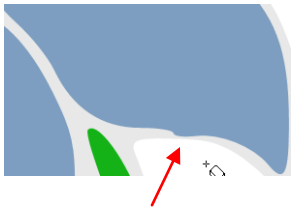


Eraser Tool is used again to smooth edge of petal and around center of flower.

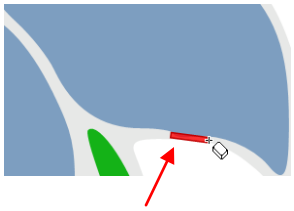


Petal is now separated from center of flower.

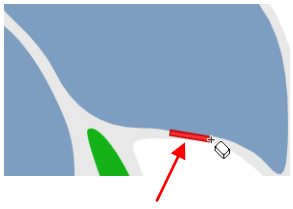
- In this last example, one of the petals sticks out a little too far and will be trimmed back. On the second erasure, the **Ctrl** key is held down so that the red line will be perfectly straight:



Petal extends too far to the outside



Eraser Tool is used to erase that part.



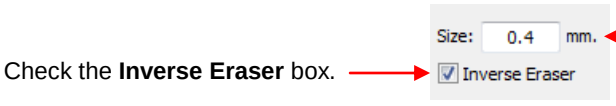
Eraser Tool is used again, this time holding the **Ctrl** key to get a straight path.

Petal is smoother

- Once you have finished erasing all part of the petals, click on the **Select Tool** so that you have access to the regular MTC functions. Select the petals and apply the **Auto Simplify Path** to smooth the edges where you erased and reduce the nodes. At this point, if you are finished using the **Eraser Tool,** you can now reactivate **Auto Simplify Welds**. Refer to *Section 7.02*

Inverse Erasing (Adding To An Image)

- The other option in the **Eraser Tool** settings is the **Inverse Eraser** which allows you to add to or fill in empty areas of a shape. Mark that option and again, set a **Size** for using the **Eraser Tool** as a drawing tool:

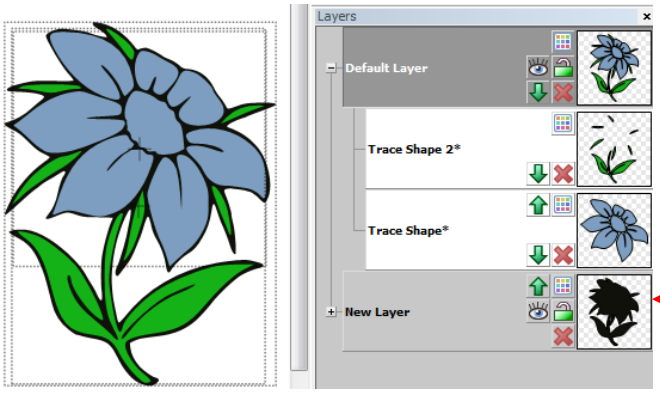


- Back to our prior example, the gray path around that last yellow petal represents the black shadow layer that was hidden during the erasing process. Notice how it becomes very thin in that area where the last petal was smoothed:

Shadow layer is very thin at this point.

- This is a perfect application for the **Inverse Eraser**. If there were many areas around the image where the shadow layer needed correcting, it would probably be faster to delete the shadow layer that was pixel traced from the original and then use the **Shadow Layer** function in MTC to create a new one (refer to *Section 8.02*). But in this case, only that one spot seems too thin.
- Several things need to be done before using the tool. If you plan to use it for a number of spots around the shape, then again turn off **Auto Simplify Welds** (refer to *Section 7.02*). Note that if you are still in the **Eraser Tool** function, you'll need to click on the **Select Tool** to return to normal MTC mode.
- Next, unhide the black layer and move it down on the **Layer Bar** so that it is now behind the petals.

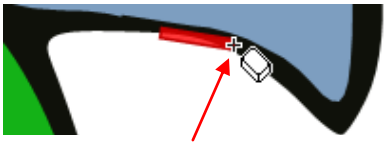
Black layer moved to the bottom so that it is now behind the blue petals and green leaves.



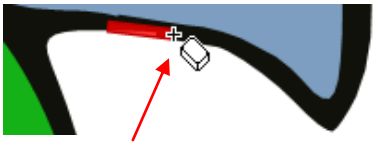
Black layer moved to the bottom.

- Activate the **Eraser Tool**, again confirming that the **Inverse Eraser** box is marked. Then zoom in on the area where the black shadow was very close to the petal. Drag the left mouse button to extend that border around the flower:

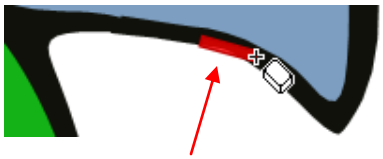
Black border is too thin.



First path is added, overlapping with thick area.



Another path is added, overlapping with first.



More is added, again overlapping with first path.

Result of added paths.

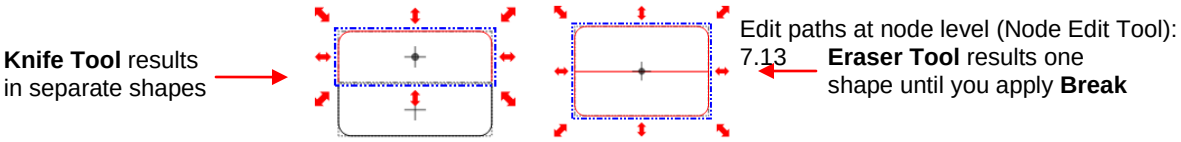
- As with the erasing process, apply the **Auto Simplify Path** function, if you turned off the **Auto Simplify Welds** before using this tool. Then turn on **Auto Simplify Welds.** Refer to *Section 7.02*.

Eraser or Knife?

- In *Section 7.09*, it was shown how the **Knife Tool** can be used to cut shapes into parts. The **Eraser Tool** can also be used for this same purpose when the **Size** is set to a very small value, such as 0.03 mm (the minimum size allowed). The differences between the two tools are:

  ◊ The **Eraser Tool** automatically closes the paths on both sides of the erased parts:

  ◊ The **Eraser Tool** doesn't break the shape into individual shapes whereas the **Knife Tool** does:


Knife Tool results in separate shapes
Edit paths at node level (Node Edit Tool): 7.13
Eraser Tool results one shape until you apply **Break**

  ◊ The **Eraser Tool** isn't limited to straight line cuts:

Knife Tool can only cut straight lines

Eraser Tool can cut custom paths

- If you are creating a popup card, where the tops and bottoms of the shapes needs to be deleted, then the **Knife Tool** is the better choice:

- If you are breaking up an image to create a paper piecing project, the Eraser Tool is the better choice:

7.12 Draw Bézier Curves and Straight Lines (Pen Tool)

- The **Draw Bézier Curves and Straight Lines** function (**Pen Tool**) is the 5th icon on the **Node Mode Toolbar** and can be activated by clicking the icon or by pressing **F5**. Use this tool to draw new paths. It can be a bit tricky to master but just like with many good things- practice makes perfect!

Drawing Straight Lines

- To draw a single straight line, use your mouse to left click once where you want to start the line and then right click where you want to end the line. Each click produces a node:

Left click once to begin.

Move cursor to where you want to finish the line.

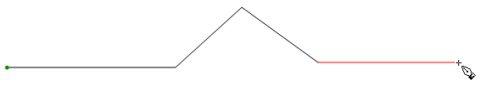
Right click to end drawing of the line.

- If you wish to continue drawing a connecting straight line path, then instead of right clicking to end, keep left clicking. At any point you can right click to add the last node and end the drawing of straight lines:

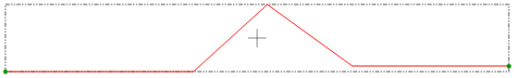
Left click to start and left click at 2nd location

Move to 3rd location and left click again.

Move to 4th location and left click again.

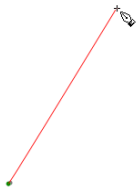


Move to 5th location and left click again.

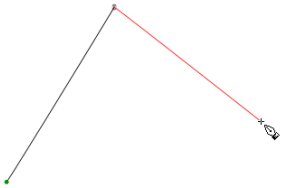


If you are finished drawing, right click to end.

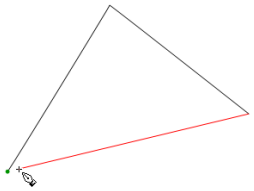
- On the other hand, if you are creating a closed path, then just as the mouse cursor approaches the starting node, the shape will fill with color and you can click one last time to end the process. You do not have to right click to end the drawing if the shape is closed:



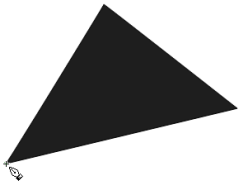
Left click to start and then left click at 2nd location



Move to 3rd location and left click again.



As you approach the start, watch for the shape to fill.



As soon as the shape fills with color, left click to end.

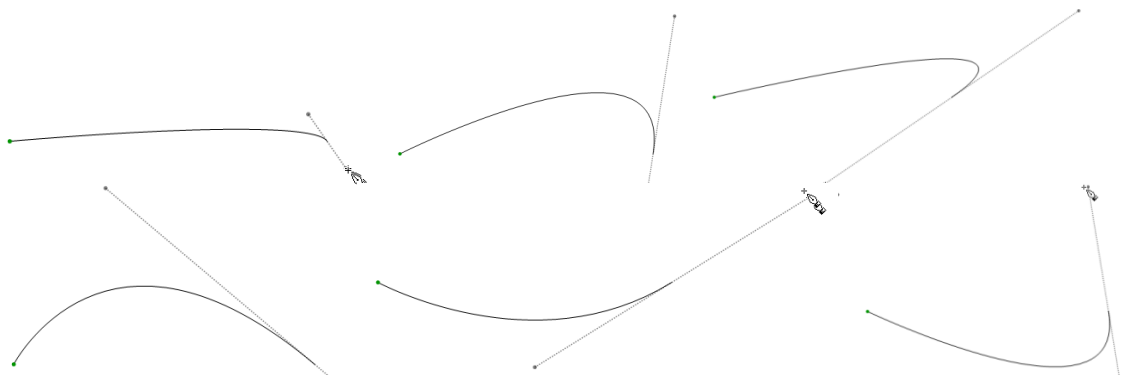
- Again, if the shape is closing, you can left click or right click to end the drawing of that shape. If the shape is not closing, then you must use a right click to stop the drawing of that shape.

Drawing Curves

- Drawing curves is a bit more difficult. The key is to take it one step at a time, practice the technique a lot, and remember that you can later correct your curves using the **Node Edit Tool** (refer to *Section 7.13*).

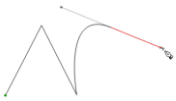
- To draw a curve, use your mouse to left click once where you want the start the curve. Then instead of left clicking, hold the left mouse button down and begin dragging the mouse outwards. Continue holding the left button and notice a dotted line appears with two points at either end. These are called control points:

- As you drag the mouse, you'll see that you have full control over how long this dotted line will be, as well as where the control points are positioned. Experiment with longer and shorter control lines, as well as rotating the line to bend the curve in a range of different ways:

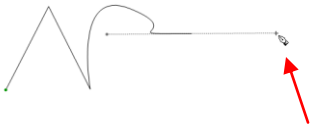


Combining Straight Lines and Curves

- There are different methods for creating a continuous string of straight lines and curves. The straight lines are easy because, as you left click to plant nodes, the straight lines remain straight and do not change as you create the next connected straight line. However, once you begin creating Bézier curves, you cannot return to straight lines, without right clicking to end the curves and then beginning the next straight line from that point:



2 straight lines are drawn and then a curve is created



But then, when you attempt to switch back to a straight line, the curve becomes distorted

- Not to worry! Once the curve is complete, you can right click to end that curve and then left click in the same spot to begin a new straight line or another curve without disturbing the one just created:

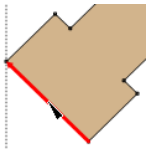
- In the end, all of those points/nodes will be connected. This is a method that can be used to do manual tracing, as presented in *Section 6.04*.

7.13 Edit Paths at Node Level (Node Edit Tool)

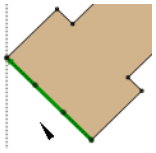
- The **Edit Paths at Node Level** function (**Node Edit Tool**) is the 2nd icon on the **Node Mode Toolbar** and can be activated by clicking the icon or by pressing **F6**. Use this tool to edit both paths and nodes in any shape.
- Before editing paths and nodes, it is recommended that **Snap Position**, on the **Virtual Mat**, be set to **No Snapping,** so that segments and nodes can be dragged freely. It is also recommended that **Nodes On Mat** be made visible by pressing **Ctrl+Shift+I** (or any of the other ways shown in *Section 7.03*).

Segment Editing

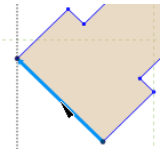
- In this section, the Tools shape from **Basic Shapes** will be used. Select the head of the hammer and then activate the **Node Edit Tool**. You will notice that as you move the mouse over the shape, whichever individual segment is beneath the mouse cursor will change to red. This is similar to how individual shapes will turn red when in the regular mode in MTC. If you left click on a segment it will turn green, unless you happen to have the green mat color selected in which case the segment will turn blue:



Hovering over a segment turns it red

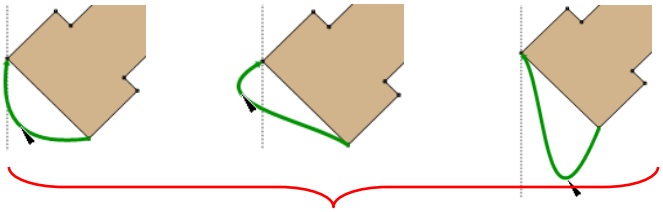


Selecting a segment turns it green

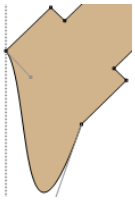


Selecting a segment, with a green mat, turns the segment blue

- A selected segment can now be “dragged” in the following ways:
  - ◊ Drag on the segment with your mouse to change the curvature in different ways:

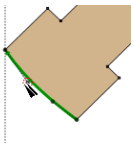


Drag a segment in any direction to transform into different shapes.

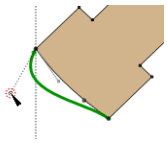


Upon releasing mouse button, shape will be modified.

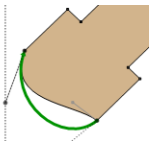
  - ◊ Drag on the Bézier control points (also called handles) to also modify the shape of the segment:



Select the segment and then place mouse over control point

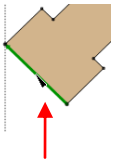


Drag point and shape will change

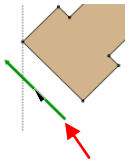


Drag other point and shape will change differently

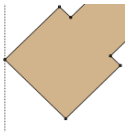
  - ◊ A selected segment can be moved using the arrow keys on your keyboard. Alternatively, you can also move the segment by holding the **Ctrl** key and dragging the segment with your mouse:



Select segment

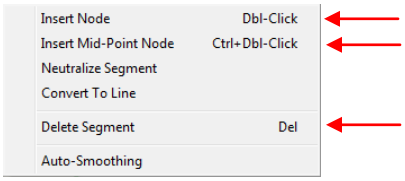


Use arrow keys on keyboard to move segment.



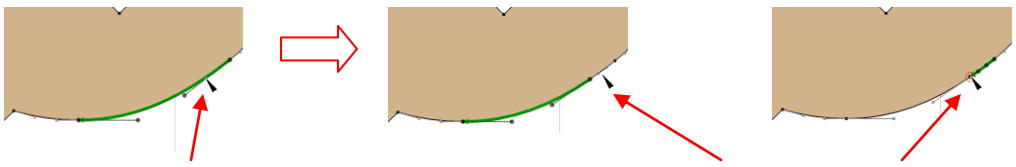
Shape is extended outwards.

- If you right click on a selected path, the following menu will open. Explanations for each options are described below:



Note shortcut keys for several of the dropdown options

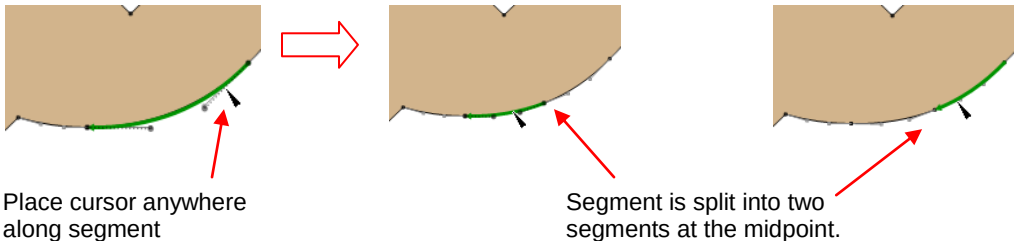
  - ◊ **Insert Node:** a node will be inserted wherever your mouse cursor is currently positioned on the segment and the segment is now split into two segments.



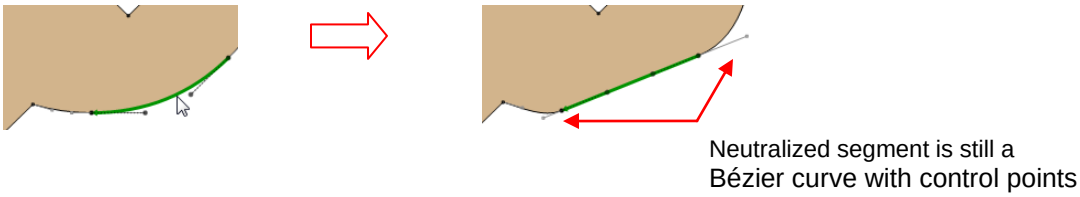
Place cursor where you want node added

Segment is split into two segments at location of new node.

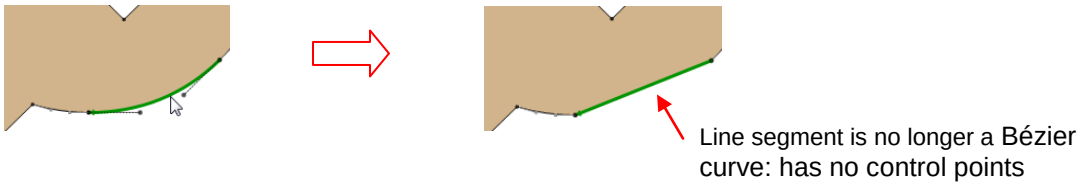
◊ **Insert Mid-Point Node:** a node will be inserted exactly half-way along the selected segment and the segment is now split into two segments of equal length.



◊ **Neutralize Segment:** the segment will become perfectly straight but will still be a Bézier curve with Bézier control points to maneuver. This is something of a panic button to use whenever a segment becomes extremely distorted.

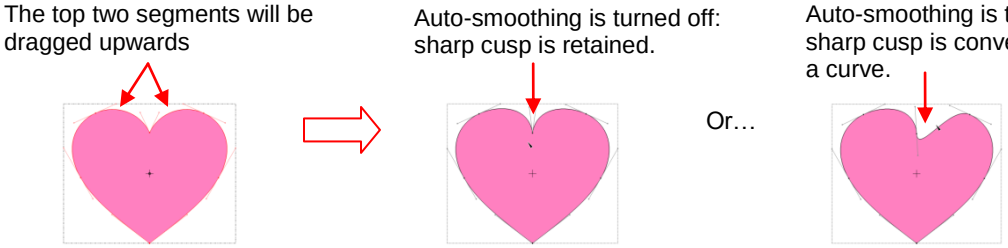


◊ **Convert To Line:** the segment will be converted to a straight line and will no longer be a Bézier curve. However, dragging the line to form a curve will immediately transform it back into a Bézier curve.



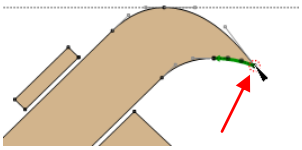
◊ **Delete Segment:** the segment will be erased and will leave unconnected nodes at the ends of the two paths that were connected to this segment. Note that if the shape was previously a closed shape (and **Fill** was turned on), it will now be an open shape with no **Fill**.

◊ **Auto-Smoothing:** all changes to a segment will result in smoothing (curving) of this segment as well as adjacent segments. This should be turned off when segments have sharp junctures or cusps with other Bézier curves. A heart will be used to illustrate this:

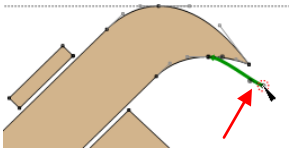

The top two segments will be dragged upwards
Auto-smoothing is turned off: sharp cusp is retained.
Auto-smoothing is turned on: sharp cusp is converted into a curve.
Or…

Node Editing

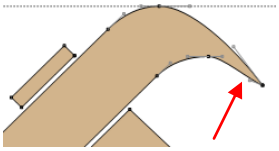
- If you hover your mouse over one of the end nodes on a selected path, you will see it become encircled with a dotted red path. That means the node can now be edited. For example, you can drag the node to a new location and the connecting segment(s) will move as well.



Red dashed circle appears around a node as the mouse cursor is held over it

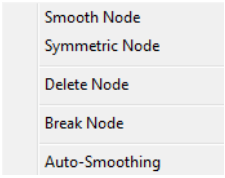


Drag the node to a new location

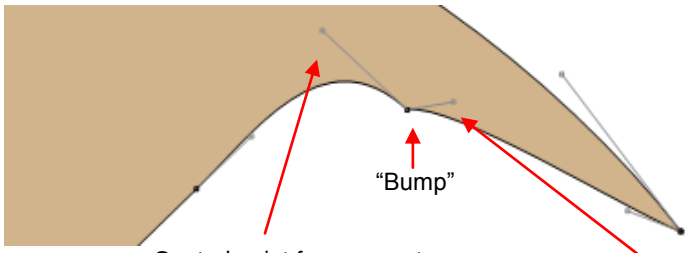


Segments on either side of the node are modified.

- If you right click on a highlighted node, the following menu will open. Explanations for each options are described below:



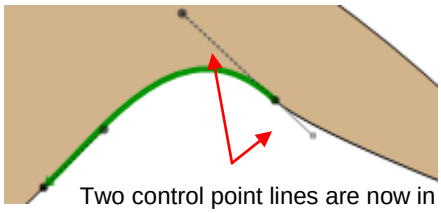
- For the sake of illustrating the node editing, the hammer claw has been modified so that there's a "bump" or warp at the intersection of two segments. Note the length and direction of the two control points:



Control point for segment on the left side

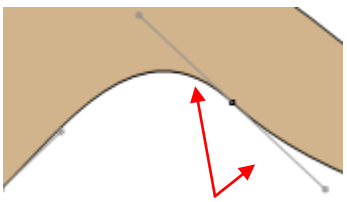
Control point for segment on the right side

◊ **Smooth Node:** The lines of the Bézier control points on either side of that selected node will align in a straight line, resulting in a smoother transition.



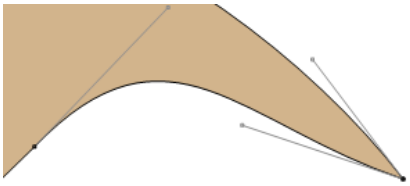
Two control point lines are now in a straight line with one another

◊ **Symmetric Node**: The lines of the Bézier control points on either side of the selected node will become equal in length, resulting in a smoother transition:

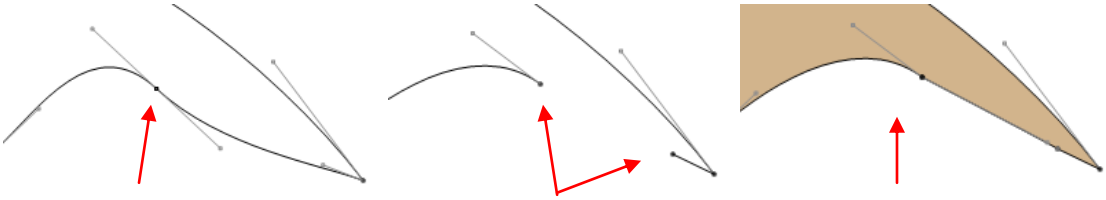


Two control point lines are now the same length

◊ **Delete Node:** The node will be deleted and the two segments will become a single segment. The Bézier control points of the new segment will automatically adjust to try to recreate the previous path of the two segments:



◊ **Break Node:** Breaks the node into two nodes so that the segments are no longer connected. The shape is no longer a closed path, thus it will not be filled with color. The new broken nodes can be moved to different locations, if desired and reconnected using the **Pen Tool**:



Node is broken and shape loses fill color

Broken nodes can be dragged to new locations

Broken nodes can be reconnected using **Pen Tool**.

Note that you can also use node breaking to define the cutting start point of a path since, on a broken path, the blade will always start cutting where a node is not connected to any other node.

◊ **Auto-Smoothing:** Same function as Auto-Smoothing under Segment Edit. It is listed again, under the Node Edit for quick access. Again, if a sharp transition needs to be maintained between the segments involved, leave unchecked. Otherwise, select this option to automatically smooth curves.

Applications for Node Edit

- It's not always obvious when the **Node Edit Tool** (for either or both segment and node editing) might be needed. Here are a few examples to keep in mind:

  ◊ Editing of pixel traced images: Sometimes a pixel trace will appear to be perfect until, for example, you use it for a print and cut and discover that some of the paths are slightly outside the printed areas of the original image:

  ◊ Manual tracing: One of the quickest ways to manually trace a raster image is to simply click/click/click around the image and then use node and segment editing to move paths and nodes to more closely align with the original image and to adjust segments for smoother cutting.

  ◊ Improving a cut: If you have problems with a particular location on a cut shape, examine the nodes in that location. You may find a cluster of nodes or a sharp cusp. Edit the segment and then retest the cut.

  ◊ Modifying poorly designed files: Sometimes you will pick up free files that prove to not quite work the way you expected. Examples are often fold-up templates where corners and fold lines do not quite meet. Having the ability to move segments and nodes can perfect these kinds of designs and provide cleaner and more professional end products.

8. Designing

8.01 Where Do I Start with Learning to Design?

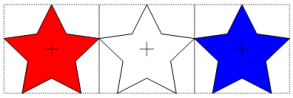
- MTC offers some excellent easy-to-use designing tools to assist you in creating whatever you can imagine! The best way to learn these tools is to focus on only one at a time, watch the related video, and pause the video after each step, to repeat what you are seeing. You might want to also jot down some notes about any particular settings or tips presented in the video. Try to imagine how the same tools can be used for other kinds of designs and write down your ideas.

8.02 Shadow Layer

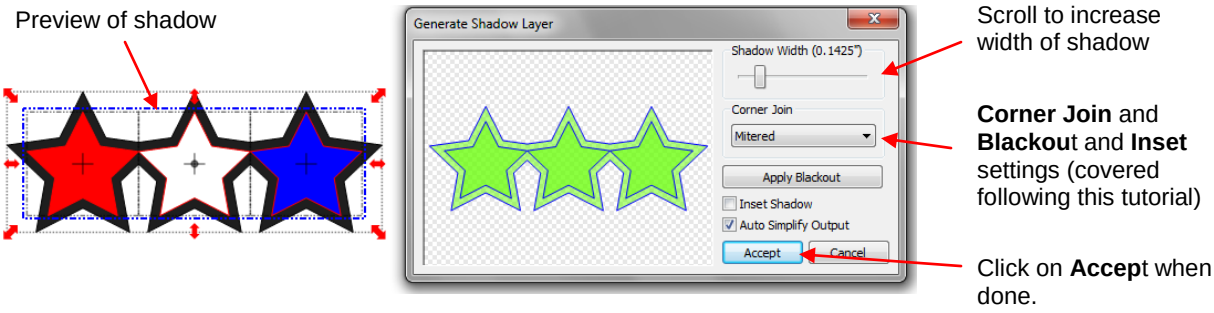
- The **Shadow Layer** function allows you to create an outline or an inline of any shape including, of course, text. After selecting the shape or shapes, the **Generate Shadow Layer** window can be opened in any of the following ways:
  - ◊ Click on the **Shadow Layer** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+H**
  - ◊ Right click on the screen and select **Shape Magic>Shadow Layer**
  - ◊ Go to **Edit>Shape Magic>Shadow Layer.**

Outset Shadow

- In this example, three stars have been added to the screen from the **Basic Shapes** library and they have been colored red, white and blue:



- Marquee-select the stars and then use **Ctrl+H** to open the **Generate Shadow Layer** window:



- Note: All settings should be made first and then the **Shadow Width** scrolled. Changing settings will cause the **Shadow Width** scroll to return to 0.

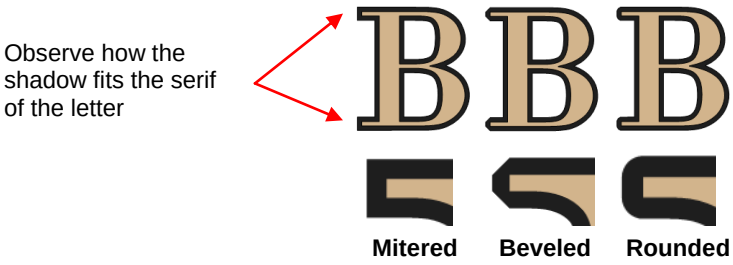
- Note that the shadows on the three stars will automatically weld together to form one single outline shadow and this shadow will be placed on its own layer on the **Layer Bar.** This layer can then be re-colored from black to another color, as desired:

Blackout Option

- The **Blackout Option** can be toggled on and off to either apply the shadow to interior paths or to black out the shadow and only have a single outset:

Corner Join Option

The **Corner Join** controls the style or shape of the shadow at the corners. There are three choices:

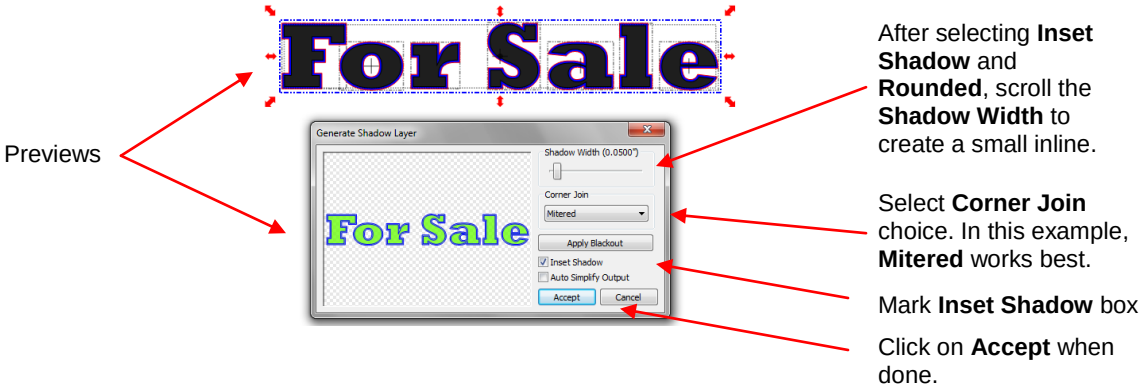


Inset Shadow

- An **Inset Shadow** is the opposite of an **Outset Shadow** – instead of creating a contour that is larger than the original shape, a contour is created that is smaller and fits inside the original shape.
- For example, let's say you are going to create a two-color vinyl sign that says "For Sale" :

- If **Outset Shadow** is used to create the second layer, the letters will automatically be welded because of their proximity to one another. This may not be suitable for your application:

- Instead, use the **Insert Shadow** option in the **Generate Shadow Layer** window:



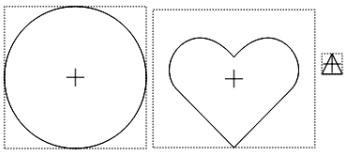
- The result, after re-coloring the layers:

8.03 Weld Tool

- The **Weld** tool removes the overlap between two or more selected shapes. After selecting the shapes, it can be applied in any of the following ways:
  - ◊ Click on the **Weld** icon on the **Magic Toolbar**.
  - ◊ Press **Ctrl+W**
  - ◊ Right click on the screen and select **Shape Magic>Weld**
  - ◊ Go to **Edit>Shape Magic>Weld.**

Designing a Balloon

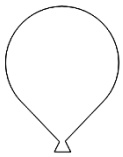
- In Section 5.03, the **Weld** tool was used to remove the overlap with lettering. It can also be used to design everyday items from basic shapes:



Circle, heart, triangle

Overlap shapes

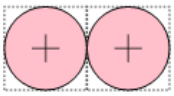
Apply **Weld** (**Magic Toolbar**)



Result: Balloon

Designing a Border

- Another use of the **Weld** tool is in designing borders. First create the shape to be repeated. A circle with a smaller circle near the top is created. Apply the **Join** (**Ctrl+J**) function to make the two circles into a single shape:

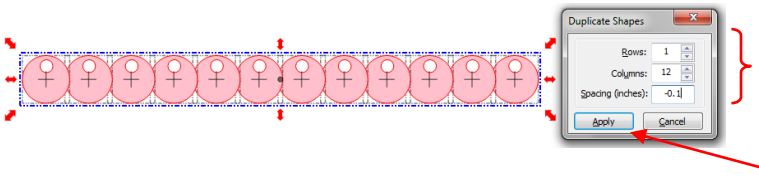


Add 2 circles from Basic Shapes

Resize one and place near the top of the other

Select both and apply **Ctrl+J** to **Join**

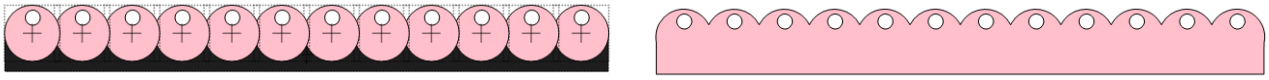
- Select the shape and use **Ctrl+D** to invoke the **Duplicate** function:



Enter 1 **Row**, 12 or more **Columns**, and a negative value for **Spacing** so the shapes will overlap

Click on **Apply** when done

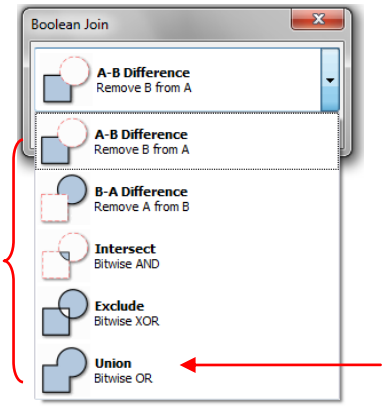
- Add a long rectangle to overlap the bottom and then apply the **Weld** tool to the selected shapes:



8.04 Boolean Join

- The **Boolean Join** menu contains five welding options but it can only be applied to two selected shapes at one time. If you have more than two shapes, then just apply the **Boolean Join** to any two at a time or, in most cases, you can either use the **Weld** (**Ctrl+W)** function or the **Join** (**Ctrl+J**) tool first to reduce your multiple shapes down to two and then use the **Boolean Join** function needed to complete your design.
- For example, if you have text that has been **Split by Glyphs** and there are 5 letters in your word, then you have 5 individual shapes. You would need to apply either **Weld** or **Join** so that those 5 letters become one single shape. Then you could perform a **Boolean Join** with that text and some other shape to achieve your desired design. This will become clearer later in this section.
- After selecting two shapes, the **Boolean Join** menu can be opened in any of the following ways:
  - ◊ Click on the **Boolean Join** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+U**
  - ◊ Right click on the screen and select **Shape Magic> Boolean Join**
  - ◊ Go to **Edit>Shape Magic> Boolean Join.**
- The menu contains the following choices:

Five tools are shown with the purpose of each tool. The screen will also show the net result as you select each one.

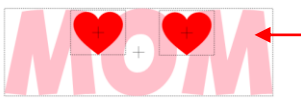


Same as **Weld** tool

- When you apply a **Boolean Join** to shapes of two different colors, then the resulting shape will be the color of the shape that was on the higher layer.
- Note: There is an **Auto Simplify** option in the **Boolean Join** window. You may need to uncheck that option to get the desired result. For example, the **Exclude Function** will not perform correctly without unchecking that option.

Cutting One Shape From Another

- If you wish to cut one shape from another, then the **Boolean Join** menu provides the solution you need. In this example, two hearts will be cut from a title.
- First, type the word "MOM" using the font of your choice. Make sure to have "**No Splitting**" selected in the **Add Text Group** window. By doing this the text will be a single shape. Then import one of the hearts from the **Basic Shapes** library, resize and duplicate to create the design you want to make:



Arrange hearts, as desired, over the text

- Make a third copy of the heart and set aside. After arranging the first two hearts on top of the text, select them both and apply a **Join** (**Ctrl+J**), so that they will now be one shape. Thus, you now have just two shapes for the **Boolean Join**: the text and the joined hearts:

The text forms one shape. The two hearts are now the second shape

Two bounding boxes, thus two shapes

- Marquee-select the two shapes and go to the **Boolean Join** menu (**Ctrl+U**). Select the second option**: B-A Difference**. Note that if the hearts had been behind the title (positioned in a lower layer than the title), then the **A-B Difference** would have given the desired result.

Heart shapes are cut from text and the text changes to the color of the hearts.

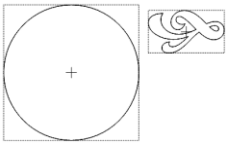
- Select the heart you set aside and decrease in size to fit inside the cut area of the title, so that a little white border surrounds the heart. Note that with some shapes you might need to use the **Inset Shadow** function presented in *Section 8.02.*
- Make a duplicate of the smaller heart and arrange inside the other cut area. Recolor the original "MOM" text to pink (refer to *Section 3.14):*

8.05 Wrap Object to Path

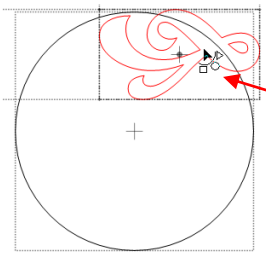
- **Wrap Object to Path** can be used to align repeats of a shape along the path of another shape. To open the **Wrap Object to Path** window, select the smaller shape, hold the **Ctrl** key and drag this shape into the middle of the larger shape. As soon as you see the mouse cursor change, release the left mouse button before releasing the **Ctrl** key.

Creating a Wreath

- Import a circle from **Basic Shapes**. Then also import or open any design, such as this flourish which can be found in the *Wingdings* font that comes with Windows:

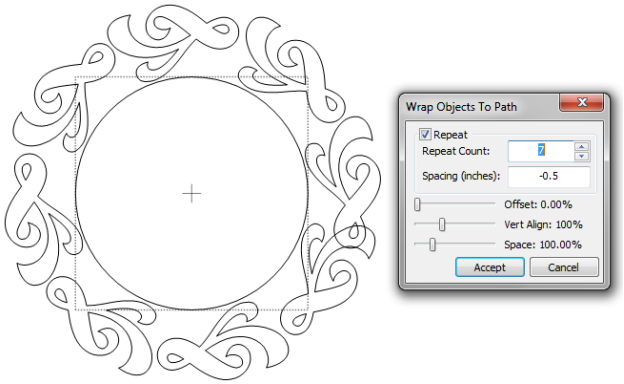


- Select the design, hold down the **Ctrl** key, and drag the shape into the circle and release your mouse button before releasing the **Ctrl** key. Note that the mouse cursor changes once the flourish has overlapped the circle sufficiently to indicate that the **Wrap Objects to Path** window will be invoked. That will indicate to you when the mouse button can be released:



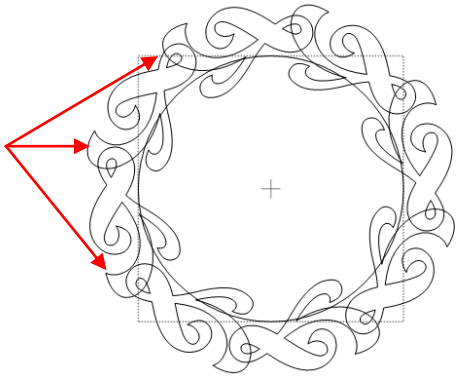
Cursor changes to an arc with little shapes. This indicates that you can now release the mouse button.

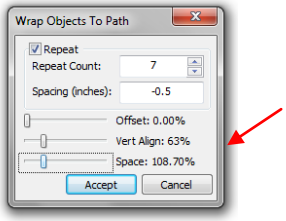
- Upon release the mouse button, the **Wrap Objects to Path** window will open. Begin by marking the **Repeat** box, set a negative **Spacing**, and begin increasing the **Repeat Count** until the last image overlaps the first:



- In order to get equal spacing and for the images to overlap for welding, begin tweaking the **Vert. Align** and the **Space** settings. The **Space** setting is actually changing the **Spacing** setting you originally entered by some percentage so that you can visually achieve equal spacing of the repeats around the circle. If the spacing entered were positive, then a larger **Space** value will, logically, increase the spacing between the objects. But with a negative **Spacing**, such as in this example, a larger **Space** value decreases the spacing, resulting in more overlap:

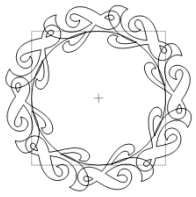
The goal is to achieve equal overlap of all shapes around the circular path.





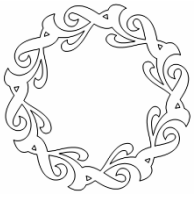
Adjust the settings to achieve the goal. Use the arrow keys on the keyboard to change values in smaller increments.

- Once you have the settings needed to get the desired overlap, click on **Accept**. Then delete the circle and apply **Weld** (**Ctrl+W**):



After clicking on **Accept**

After deleting circle



After welding

8.06 Conical Warp

Video

- The **Conical Warp** feature can be used for shaping designs to fit around conical shapes, which are tubular shapes in which the top is a different diameter than the bottom. What makes this feature especially fun to use in designing is the incredible 3D simulation, as you will see in the **Tumbler Wrap** example which follows below.

- The **Conical Warp** feature is accessed in the following ways:

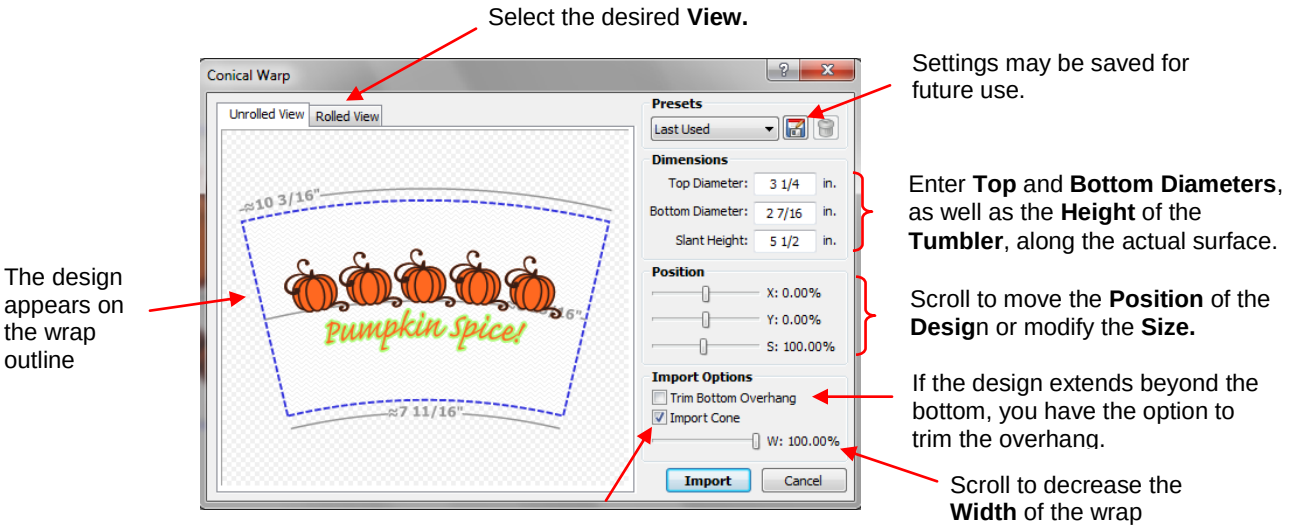
  ◊ Click on the **Conical Warp** icon on the Magic Toolbar

- ◊ Press **Ctrl+Q**
- ◊ Right click on the screen and select **Shape Magic>Conical Warp**
- ◊ Go to **Edit> Shape Magic>Conical Warp**

Tumbler Wrap

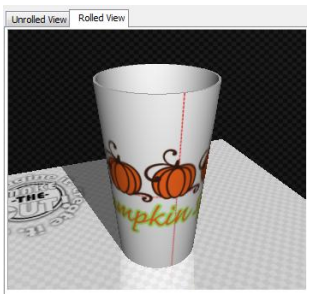
- A design has been created for the wrap. The pumpkin is from the free *Create-A-Card* set in the Lettering Delights window. A random font was chosen to create the lettering:

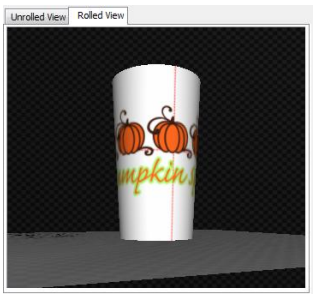
- Select the entire design and then click on the **Conical Warp** icon. The follow window opens:

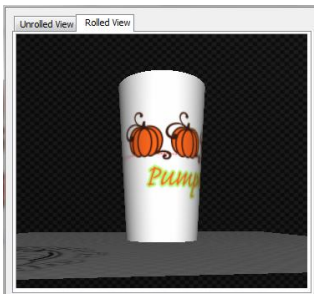

Select the desired **View.**
Settings may be saved for future use.
Enter **Top** and **Bottom Diameters**, as well as the **Height** of the **Tumbler**, along the actual surface.
Scroll to move the **Position** of the **Design** or modify the **Size.**
If the design extends beyond the bottom, you have the option to trim the overhang.
Scroll to decrease the **Width** of the wrap
The design appears on the wrap outline
Conical Warp
Unrolled View
Rolled View
Presets
Last Used
Dimensions
Top Diameter: 3 1/4 in.
Bottom Diameter: 2 7/16 in.
Slant Height: 5 1/2 in.
Position
X: 0.00%
Y: 0.00%
S: 100.00%
Import Options
Trim Bottom Overhang
Import Cone
W: 100.00%
Import
Cancel
≈10 3/16"
≈7 11/16"
6"
Pumpkin Spice!

Option to import the outside shape of the wrap/cone

- Before clicking on **Import**, click on the **Rolled View** tab. You will be able to drag your mouse across the screen to rotate the tumbler and view from virtually any direction:







- You can continue to make changes to the settings in the **Rolled View**, as well, and click on **Import** when done. If you selected **Import Cone**, then you will see both the outside shape of the wrap for the tumbler, as well as the original image, reshaped to fit the wrap:

- This feature can also be used in the design of cupcake wrappers! Video

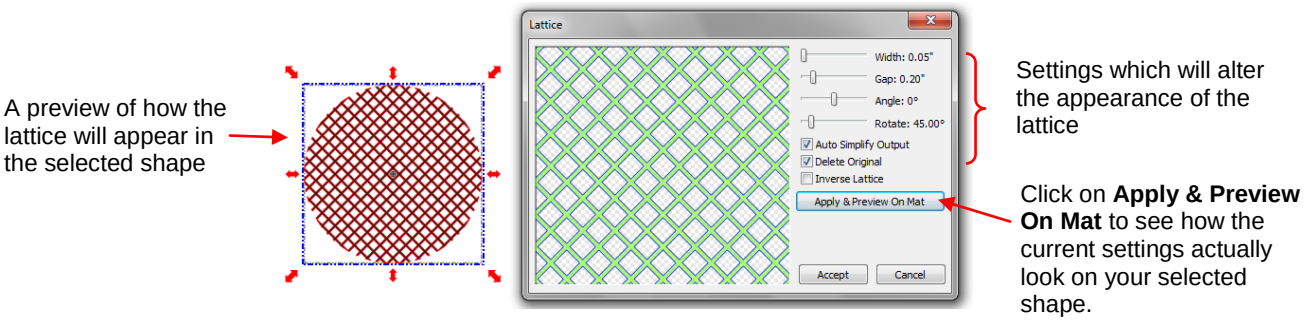
8.07 Lattice

Video

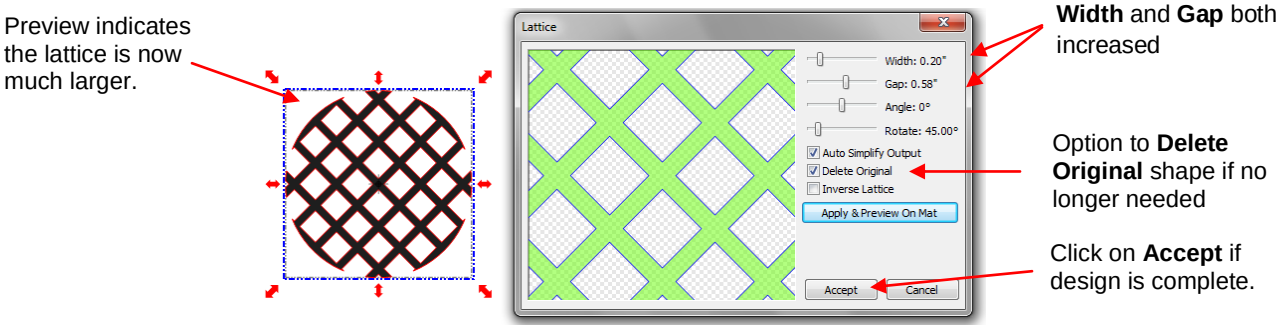
- The **Lattice** feature can be used to create a lattice design within a shape or part of the entire shape itself. It can be accessed in any of the following ways:
  - ◊ Click on the **Lattice** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+E**
  - ◊ Right click on screen and select **Shape Magic>Lattice**
  - ◊ Go to **Edit>Shape Magic>Lattice.**

Latticed Circle

- Begin with a circle, select and then click on the **Lattice** icon on the **Magic Toolbar**. This window will open:

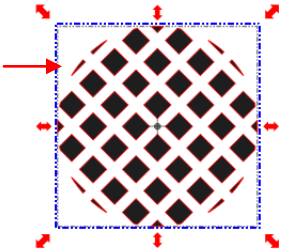

A preview of how the lattice will appear in the selected shape
Lattice
Width: 0.05"
Gap: 0.20"
Angle: 0°
Rotate: 45.00°
Auto Simplify Output
Delete Original
Inverse Lattice
Apply & Preview On Mat
Accept
Cancel
Settings which will alter the appearance of the lattice
Click on Apply & Preview On Mat to see how the current settings actually look on your selected shape.

- The selected circle indicates that the current settings for **Lattice** will result in a much smaller, detailed look than desired. But with the adjustment of the **Width** and **Gap** settings (both made larger), the result is much more practical for cutting:

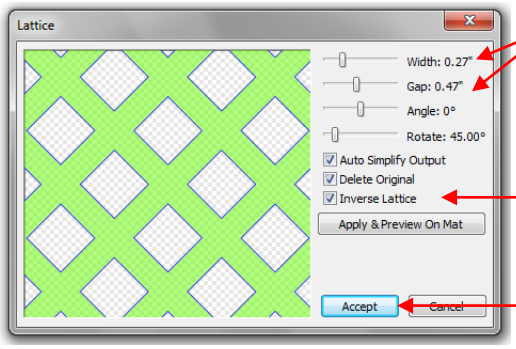


- Now the design shown would cut exactly as shown. You would have a single cut piece. But for some lattice designs, the opposite is wanted. For example, when cutting a design from the front of a greeting card, you plan to keep the card and not the design itself. In this case, you would mark the **Inverse Lattice** option and perhaps tweak the Width and Gap settings some more

Notice the difference. In this case the lattice part will be attached to the cut material



:



Width and **Gap** modified after switching to **Inverse Lattice**

Click on **Inverse Lattice** to reverse the type created

Click on **Accept** if design is complete

8.08 Rhinestone Design

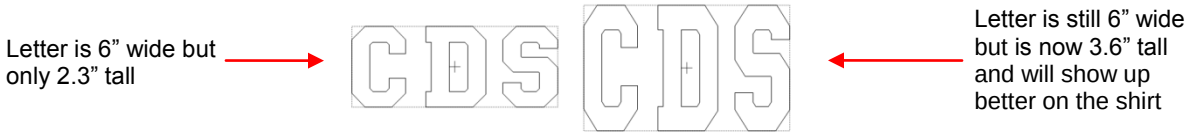
Video

- MTC's **Rhinestone** feature provides both outlining and horizontal fill of shapes with the size of circles needed for your rhinestones and the spacing desired. It can be accessed in any of the following ways:
  - ◊ Click on the **Rhinestone** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+K**
  - ◊ Right click on screen and select **Shape Magic>Rhinestone**
  - ◊ Go to **Edit>Shape Magic>Rhinestone.**
- There are some very specific guidelines to follow when designing a rhinestone pattern:
  - ◊ The shape needs to be sized before applying the rhinestone circles. If you wait until afterwards and then realize that you want your overall design to be twice as large, then resizing will make the circles twice as large and the spacing twice as large, too! So, before accessing the **Rhinestone** feature, decide on the overall size you wish to use.
  - ◊ The circle size selected will need to be larger than the stone size you purchased. As a general rule, select a size three numbers larger than your stones. Thus, if you purchased 10SS stones, then in the rhinestone design window, you will want to be selecting 13SS stones. This larger size will allow the 10SS stones to more easily brush into the holes.
  - ◊ When selecting a font to use, be leery of "fancy fonts". You want the lettering to be readable after it is converted to circles. When in doubt, have someone who doesn't know the words you've typed attempt to read the circle design on the screen. If they cannot decipher your words, then try a more basic font.
  - ◊ Rhinestone designs almost always need "tweaking" which involves adding, deleting, moving, or respacing circles. You will need to apply a **Break** (**Ctrl-B**) to separate the pattern into individual circles. To quickly add a circle, select one, click on the **Copy** icon and then click on the **Paste in Place** icon and drag the circle to its new location. Then you can continue to just click on **Paste in Place** to add more. To respace a row or column of circles, marquee-select and then use the shortcut keys, **[** and **]** to provide equal vertical and equal horizontal spacing, respectively.

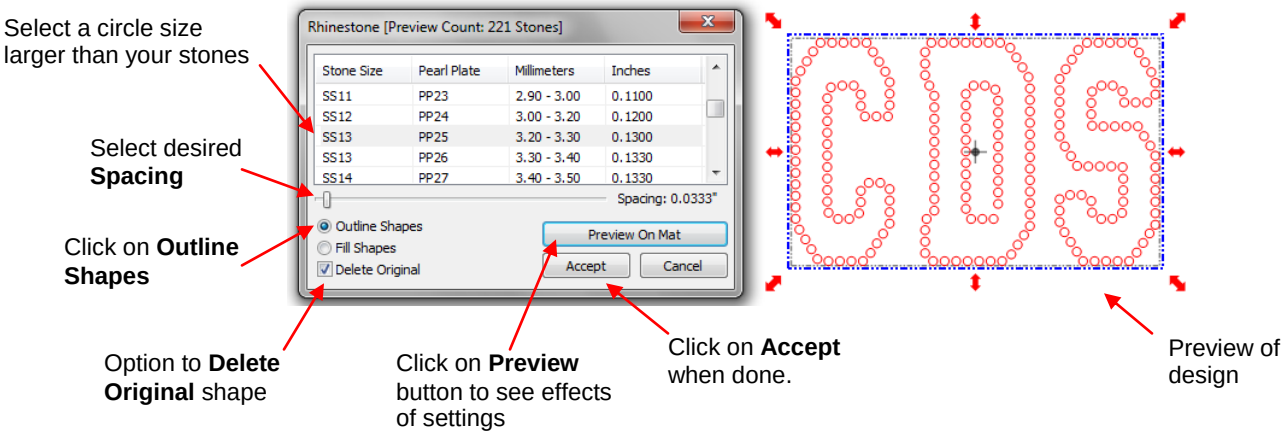
Rhinestone Outline

- In this example, the initials from a high school will be outlined. As mentioned in the introduction to this section, the first step is to size width and height of the lettering. Make sure there is enough space between

the letters so that the circles will not overlap. Also, you may want to resize the lettering vertically to make the letters taller. This allows more circles to be applied and can improve the ability to read the text:



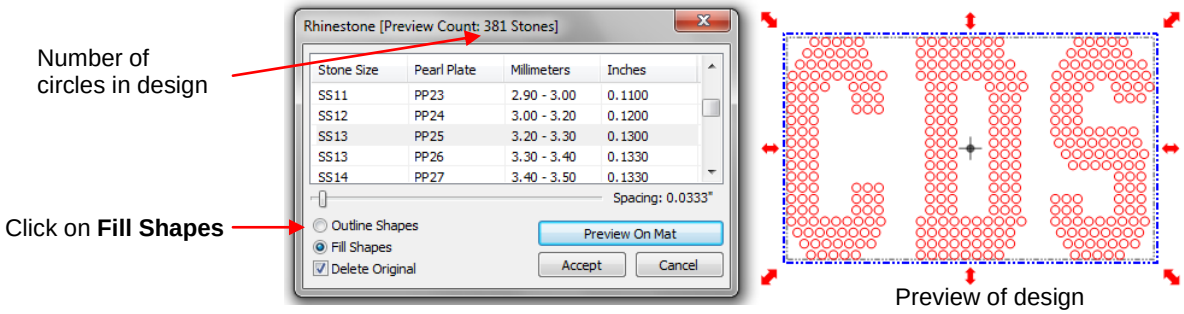
- To apply a rhinestone outline, select the shape and then click on the **Rhinestone** icon. This window opens:



- It is recommended that you mark the **Delete Original** option while previewing your design on the screen. However, before clicking on **Accept**, remove the mark. You may need to recreate your design at some point and having the original shape will be beneficial.
- The final step will be to tweak the design using the short cut keys mentioned at the beginning of this section.

Rhinestone Fill

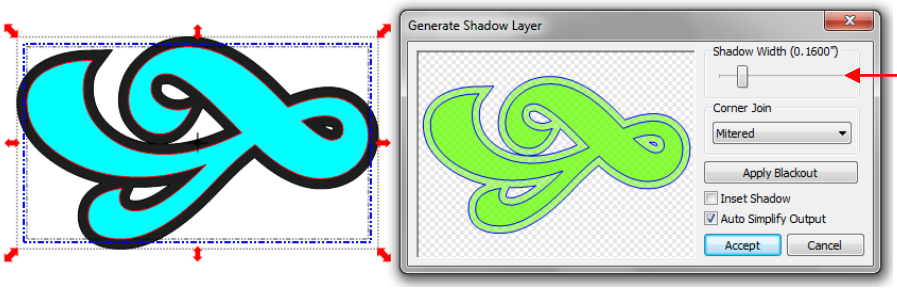
- The other option in the **Rhinestone** feature is **Fill Shapes**. Instead of outlining the shape, the image will be filled with circles in horizontal rows. In our prior example, the same letters will now appear like this:



- Note that in the title of this window, the number of circles in the design is shown. Rhinestones are typically sold by the gross and 1 gross equals ~ 144 stones.

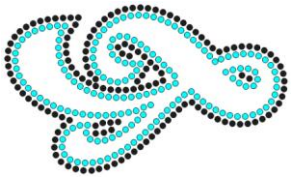
Additional Tips on Rhinestone Designing

- Sometimes the circles you want to respace equally may fall closer to a 45^0 angle versus vertically or horizontally. Select your entire design and rotate until the line of circles are closer to vertical or horizontal. Respace using the [or] shortcut keys and then rotate back into place.
- If you want to outline your design, then create the outline first using the **Shadow Layer** function (**Ctrl-H**). Choose a **Shadow Width** at least the size of the circles plus the spacing. In the 10SS example ,the circles were 0.13" in diameter and the spacing was 0.03". If the same settings are used in this next example, then the **Shadow Width** needs to be 0.16":

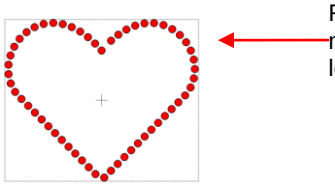


Set the **Shadow Width** to at least the size of the circles plus the spacing

- The resulting design with the shadow set to the circle size plus the spacing, looks like this:

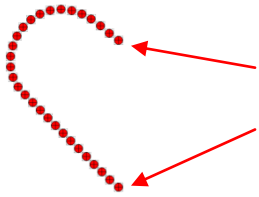


- With symmetrical rhinestone designs, consider using the following process to perfect your design:
  - ◊ This heart outline is clearly not symmetrical:



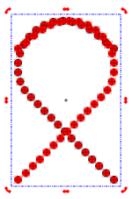
Right half of heart is not symmetrical with left half

  - ◊ Delete the right half and position the upper and lower circles to the desired location:

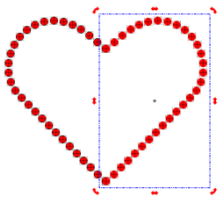


Right half is deleted and then circles tweaked to positions desired

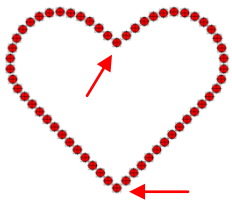
  - ◊ Select circles and then perform the following steps shown:



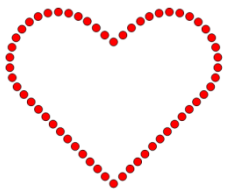
Click on the **Copy** icon, followed by the **Paste In Paste** icon, and then the **Mirror** icon.



With right side still selected, press right arrow key until right side is in place.



Delete the top and bottom circles since there are identical copies on top of one another

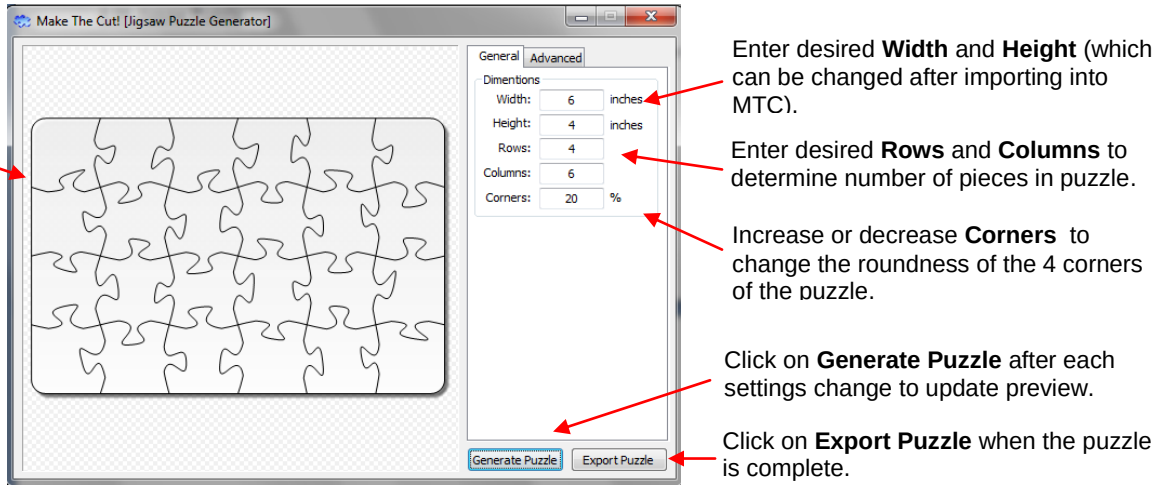


Apply the **Join** function and the design is complete

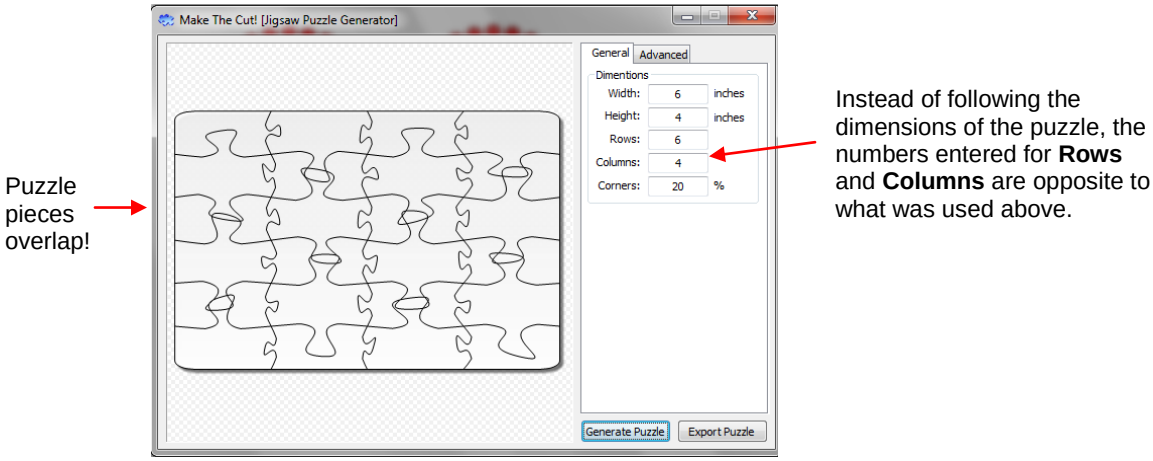
8.09 Jigsaw Puzzle

Video

- The **Jigsaw Puzzle** feature installs as a separate application. To open it, go to your Windows **Start** button, select **All Programs**, locate your **Make The Cut**! folder and then select **Jigsaw Puzzle Generator**.
- The following window will open:


Make The Cut! [Jigsaw Puzzle Generator]
General
Advanced
Dimentions
Width: 6 inches
Height: 4 inches
Rows: 4
Columns: 6
Corners: 20 %
Generate Puzzle
Export Puzzle
Preview of jigsaw puzzle
Enter desired **Width** and **Height** (which can be changed after importing into MTC).
Enter desired **Rows** and **Columns** to determine number of pieces in puzzle.
Increase or decrease **Corners** to change the roundness of the 4 corners of the puzzle.
Click on **Generate Puzzle** after each settings change to update preview.
Click on **Export Puzzle** when the puzzle is complete.

- If you plan to apply this puzzle over a specific image, you may want to choose dimensions that correspond to your image. For example, let's assume you have imported a 4" x 6" photo into MTC and plan to make a print and cut jigsaw puzzle. Enter those dimensions into the **Jigsaw Puzzle Generator**, as shown above.
- Further, to keep the pieces from becoming too distorted (or worse, overlapping), you should make the number of **Rows** and **Columns** similar to the dimensions, as shown. If you want more pieces then you can increase the number of **Rows** and **Columns** proportionately. For example, instead of having 4 **Rows** and 6 **Columns**, use double the number to 8 **Rows** and 12 **Columns** (or 1.5 times to 6 **Rows** and 9 **Columns**). Note how the pieces would look if a rough proportion were not maintained. The pieces would cut into one another:



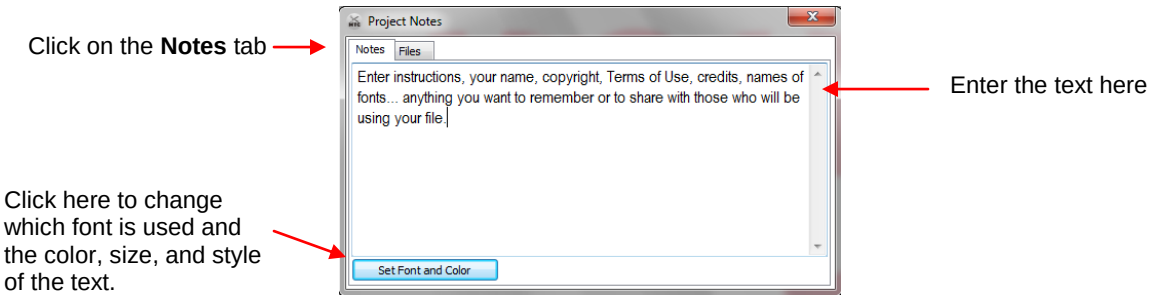
- There is also an **Advanced** tab you can use to alter the design of the pieces and even save your new settings.
- When you are satisfied with the appearance of your puzzle pieces, click on the **Export** button and a window will open and you can save your puzzle as an SVG file.
- In MTC, import your SVG puzzle file and align it over the image you wish to convert into a puzzle. Perform a print and cut as presented in *Chapter 9*. Alternatively, if you print your image a little bit larger than the

overall design of the puzzle, you can set your origin just inside the corner of your printed image and then cut the design using the **Knife Point** setting (Refer to *Section 2.02*).

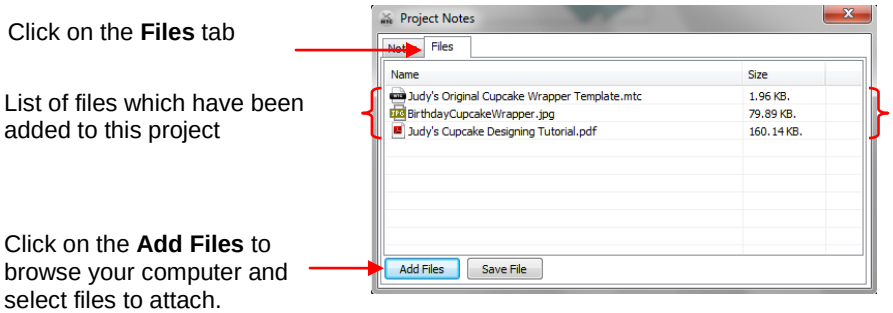
- Here is an example of an imported picture and the puzzle imported and sized to fit on top:

8.10 Notes Window

- The **Notes** window in MTC can be used in a host of ways: (1) providing instructions for cutting and assembling the project, (2) adding your name, copyright, and Terms of Use, (3) explaining the purpose of different pages or layers, (4) crediting others for assistance with the design, (5) citing sources for clipart or names of fonts used, and (6) attaching files you want to provide with your project.
- The **Notes** window can be opened using the following ways:
  - ◊ Click the **Toggle Notes Window** icon on the **File Toolbar**
  - ◊ Go to **View>Notes Window.**
- There are two tabs in the **Notes** window – **Notes** and **Files**. The **Notes** window is used for entering any text you wish to include with your project:


Click on the **Notes** tab
Project Notes
Notes
Files
Enter instructions, your name, copyright, Terms of Use, credits, names of fonts... anything you want to remember or to share with those who will be using your file.
Enter the text here
Click here to change which font is used and the color, size, and style of the text.
Set Font and Color

- The **Files** tab can be used to attach files to your project file. For example, you might want to attach a photograph of your completed project, or a PDF tutorial, or another MTC file that is associated with this one. Any file can be attached:

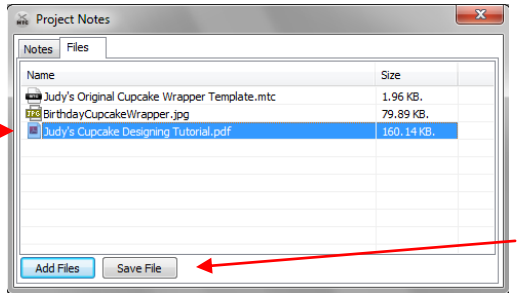


- If you have any information entered into your **Notes** window or a file attached, then it will automatically open when the file is opened by you or someone else.

- If you open an MTC project file from someone who has attached one or more files in the **Notes** window, you can try double-clicking the file name to automatically open that file. With some file formats, such as PDF, you will need to save the file to your computer and open it outside of MTC.

- To save an attached file, click on the file name and then click on the **Save File** button to open a window where you can browse your computer to locate a folder for saving that file.

To save a file, first highlight the name by clicking once.

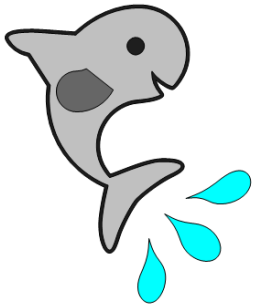


Then click on **Save File** to save the highlighted file to a location of your choice on your computer.

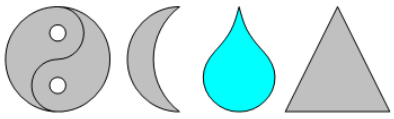
8.11 Design Contest Tutorials

- In October 2011, a contest was sponsored by KNK USA. The challenge was to take existing designs or shapes and transform them into new shapes using various functions in MTC. The following tutorials are from the two winning entries and are excellent examples of how the tools available in MTC can be used in creative ways.

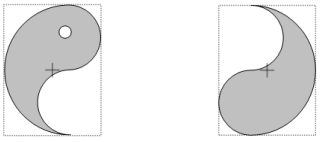
Designing a Whale by Brigit Mann



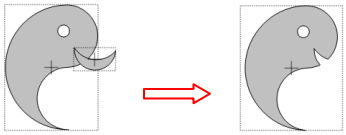
- Begin with the following **Basic Shapes**:



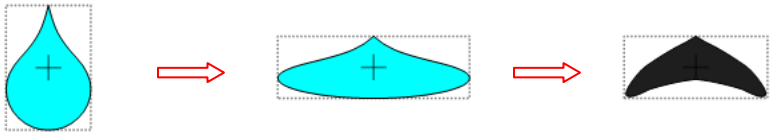
- Select the Yin Yang, resize to about 3" in height. Apply the **Break** function. Delete the lower circle and set the right side of the Yin Yang off to the side. Make the circle slightly smaller (this will be the whale's eye). Apply a **Join** to the left side to recombine the circle to the Yin Yang:



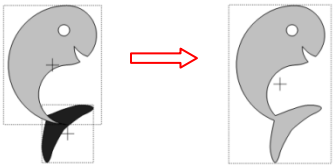
- Resize the crescent and rotate and put it partially on the whale body where the mouth would be. Select both pieces and apply **Boolean Join**, selecting **B-A Difference**:



- Unlock the **Aspect Ratio** and resize the tear to 2.5" **W** x 0.8"**H.** Select and click on the **Bézier Warp** tool. Under **Size** and **Position,** slide the left and right to about 37:

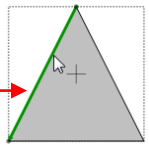


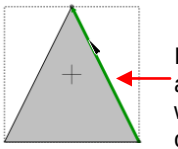
- Rotate the tail to line up with and overlap the whale body. Apply the **Weld** tool:



- Lock the **Aspect Ratio** and resize the triangle size to about 1.1". Insert nodes on each side as shown. Then drag top node to the left:

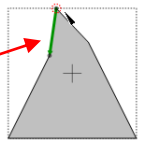
Insert a node about 1/3 of the way from top of path:



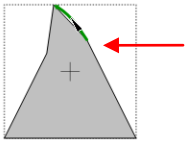


Insert a node about ¼ of the way from top of path:

Drag top node to the left

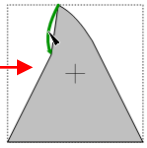


- Curve paths outwards to form fin:

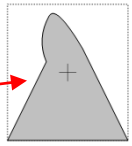


Drag curve

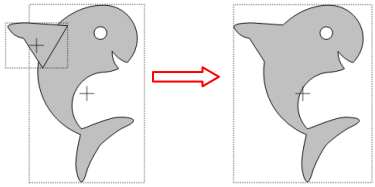
Drag curve



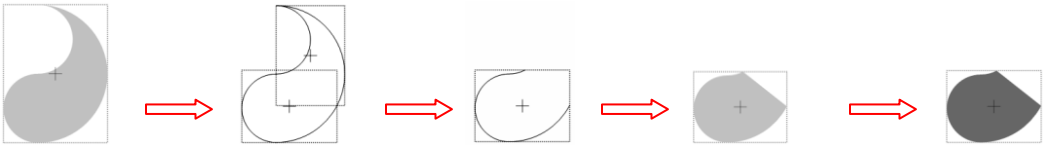
Fin is formed



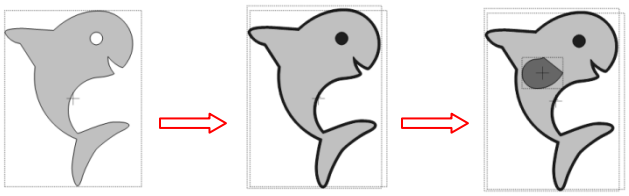
- Rotate the fin, overlap onto the whale's body and apply the **Weld** tool:



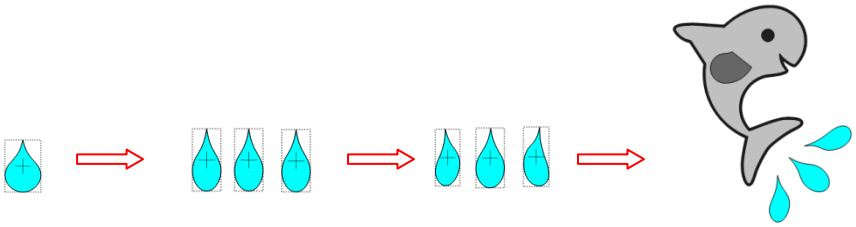
- Resize the other Yin Yang section to a width of 1". Using the **Knife** tool, slice in the middle and delete the top piece, join the two nodes together this is the flapper:



- Select the whale and apply a **Shadow Layer** (with blackout selected). Then arrange the flapper on top:

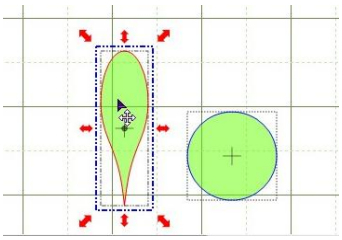


- To add some splashes, start with additional tear shapes, resize to make thinner, and apply **Warping** or other method of distorting the shape. Rotate and arrange under the whale to complete the design:

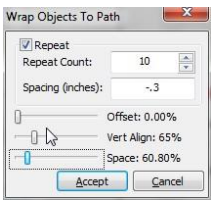


Designing a Flower by Laury Vaden

- This colorful flower is made from just a few **Basic Shapes**: Circle, Swirl, Heart2, Tear, and Wavy 2.
- Set **Snap Position** to **No Snapping**. Choose one of the non contrast mats such as the standard green mat.
- Select the Circle and move it down and away from the other shapes. Then select the Tear and move it down. Click on the Tear until red icons change to the mode shown below. This is the **Scale** mode. Elongate the Tear and thin it as shown:

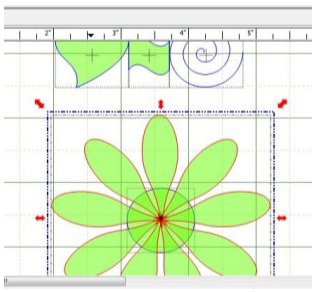


- Holding the **Ctrl** key, move the Tear over the Circle and release. This will open the **Wrap Objects to Path** window. (Refer to *Section 8.05* for details on activating this function):

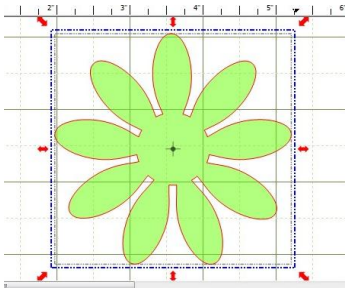


- First, check the **Repeat** box. Then increase the **Repeat Count**. Use a negative value for the **Spacing** so that the Tears overlap slightly. Spacing is controlled by both the **Spacing** setting that you type in and the **Space** slider setting just above the **Accept** button. This might be a little confusing especially when you use negative numbers versus positive numbers. Practice a bit to see how it works with both. The **Vertical Align**

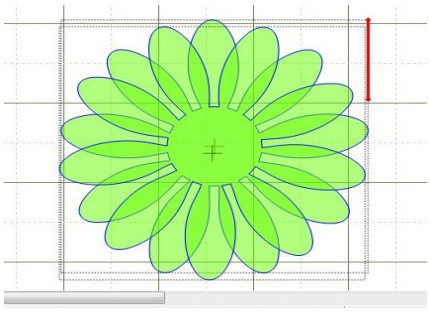
slider controls how far into the circle the Tears will be located. The **Offset** slider is not used because the tears are being aligned along a circle:



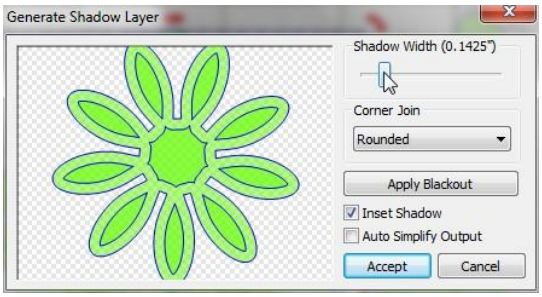
- Select the Circle and all of the Tears/Petals and apply the **Weld** function:



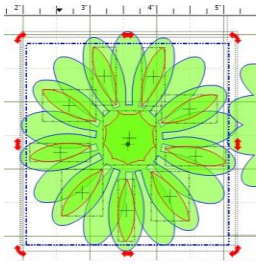
- Click on the flower and apply a **Copy** and **Paste In Place** to create a duplicate. Double click on the duplicate until the shape is in the **Rotate** mode. Then slowly rotate the copy by dragging the corner icon around until the copy lines up with the spaces of the original:



- Flower Center: Select one of the flowers and perform another **Copy** and **Paste in Place**. Move the copy away from the other flowers and click on the **Shadow Layer** icon:

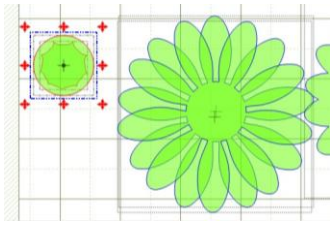


- The above popup menu will appear. Check the **Inset Shadow** box. Uncheck the **Auto Simplify Output** box. It is recommended that **Mitered** be selected as the **Corner Join** instead of **Rounded**. The shape for the flower center is only the center shape. Use the **Shadow Width** slider to create the inset. Click on **Accept** when you are done.

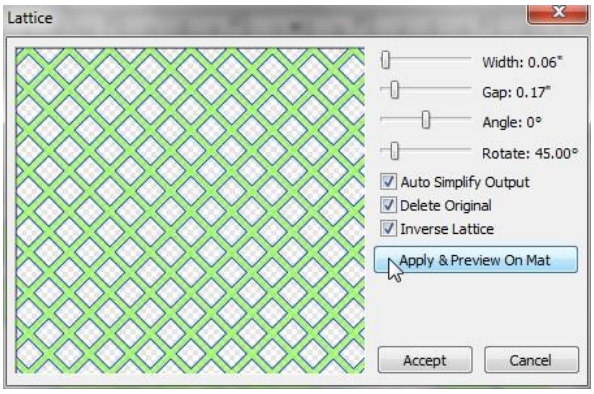


- To delete the petals, first select the inset shape and then apply the **Break** function. Now delete each of the petal insets. Again, you are only interested in the very center inset. The original shape (the one that was used for the **Shadow Layer**) may also be deleted.

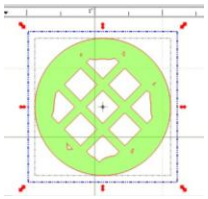
- Place another circle on the mat from the **Basic Shapes** library. Select both the new Circle and the center inset and press **S** to **Stack** them:



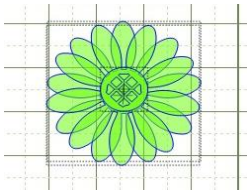
- Select just the inset shape and then click on the **Lattice** icon to open the **Lattice** window. Check the boxes for **Inverse Lattice**, **Auto Simplify Output**, and **Delete Original**. Note the other settings used and click on **Accept:**



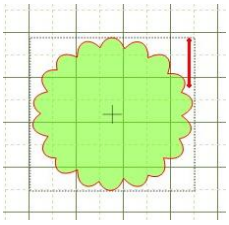
- Join the Circle and the lattice by selecting both and applying the **Join** function. To remove the tiny cutouts, press **F6** to activate the **Eraser** tool. Check the **Inverse Eraser** box and set the **Size** to 1. Then erase the little cutouts that you do not want.



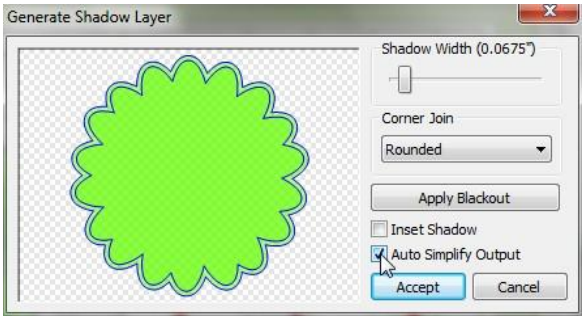
- This is the center of the flower. Select both sets of petals and the center and press ***S*** to **Stack** them.



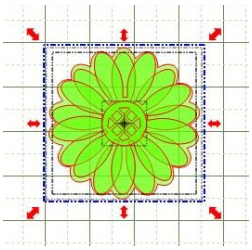
- Flower Shadow or Mat: The last part of the main flower is to create an outset shadow of the entire flower. The first step is to select the entire flower head and apply **Copy** and **Paste in Place** to create a new copy on top of the old. Move the new copy away from the flower and apply the **Weld** tool.



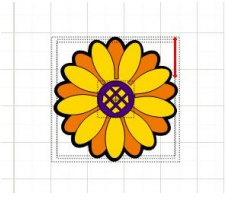
- Select the flower outline and press the **Shadow Layer** icon:



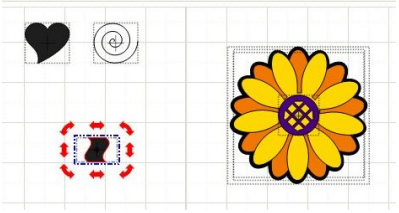
- Use the settings above to make a shadow for the flower. Press **Accept** when you are done. Delete the original outline (the smaller one). Select the flower and the shadow and press ***S*** to **Stack** them together.



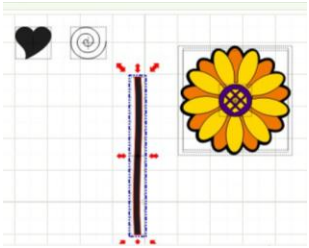
- Color: Set the mat to **Contrast** on the **Virtual Mat** tab. Make sure each shape is on its own layer, then move the layers up or down so that the center of the flower is on top. Change the colors of the two sets of petals and the center:



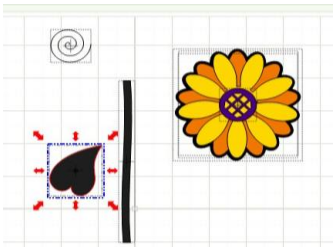
- Flower Stem: Select the Wavy shape and move it away from the other shapes. Click on the **Rotate 90 degrees** icon:



- Click on the shape until you see the red **Scale** mode icons then elongate the shape, by dragging the red icons, until it is the size and appearance of the stem you want:

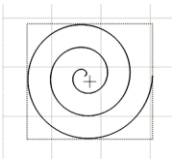


- Leaf: Select the Heart shape and bring it down to the stem. Manipulate it until it is the shape and size you want for a leaf. Do this by using the different red **Scale** icons in **Scale** mode. You may also wish to try some of the red warping icons in **Warp** mode (red Quad arrows):

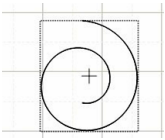


- Place the leaf near the stem. Later you will use the **Fat Path** in the **Pen Tool** in **Node Edit Mode** to add a little stem to the main stalk:

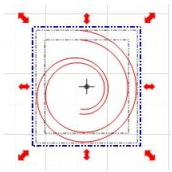
- **Sprial**: The **Basic Shape** Swirl is an open path/single line shape which needs to be converted into the spiral that will be cut out. It also has a few too many turns for the flower:



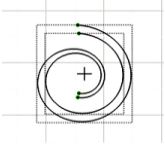
- Use the **Node Edit Tool** to delete nodes at the start and at the end of the Swirl to reduce the number of turns:



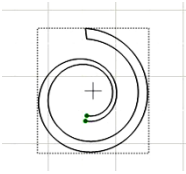
- To convert to the spiral that will be welded to the flower stem, select the modified Swirl and use **Copy** and **Paste In Place** to make a copy. Select the copy, and reduce in size to make it smaller but not change the shape. Arrange the two shapes and press **S** to **Stack** them:



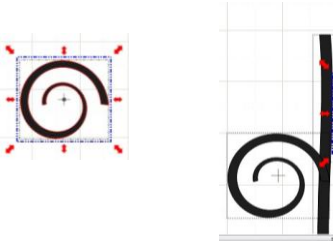
- Combine the two paths into a single shape by using the **Pen Tool** in **Edit Node Mode** (press **F5**):



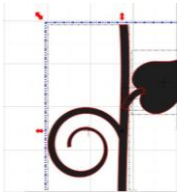
- When you activate the **Pen Tool** you will notice four nodes now appear at the ends of the two spirals. Connect the nodes by left clicking on one node and right clicking on the node to which you want to connect:



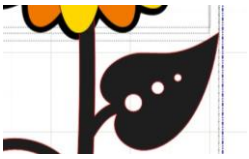
- Repeat with the other set of dots/nodes to finish closing the open path into a shape.
- To position the swirl shape, select it and click the **Mirror** icon. Next click the **Rotate 90 degrees** icon. Move the spiral into place against the stem. Select the stem and spiral and click the **Weld** icon



- Add a Leaf Stem: Click on the leaf and position it a little away from the stem. Click on the **Pen Tool** again. This time check the **Fat Path** box. Select a **Size** for the **Fat Path** to use for drawing the leaf stem. Left click on the flower stem and right click in the center of the leaf:



- Select the flower stem, the leaf and the leaf stem and click on the **Weld** icon.
- Add three circles and resize two to be progressively smaller. Position them on the stem as shown below. Select the stem and the little circles and apply **Join**:



- Recolor the stem to be green. The design is completed!

9. Print And Cut

9.01 What Is a Print And Cut (PNC)?

Video

- The print and cut process involves printing an image from MTC to any printer you own and then, with the aid of the Zing's laser, having the image or images cut out with perfect precision. Below are three types of print and cut applications commonly used by crafters. There are others presented in *Section 9.05*.

  ◊ The cut line is along the actual border of the printed image:

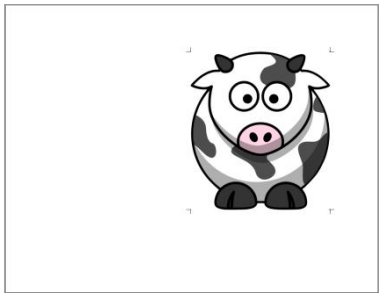


Image is precisely cut along printed borders

  ◊ The cut line is outside of the border but follows the shape of the printed image:

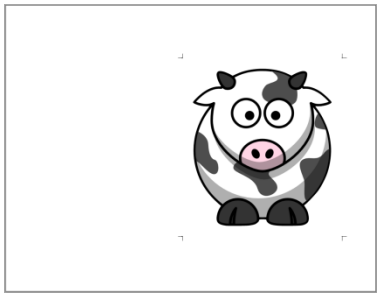
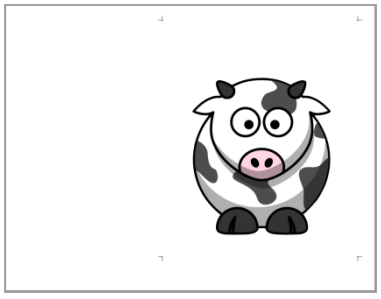


Image is cut in same shape but offset from outside printed borders

  ◊ The cut line follows a different shape from that of the printed image:

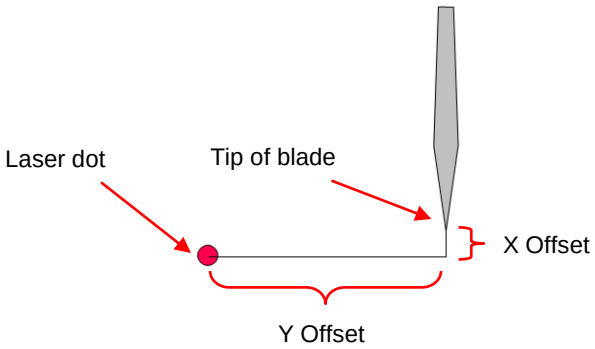


A custom shape is cut around the printed image.

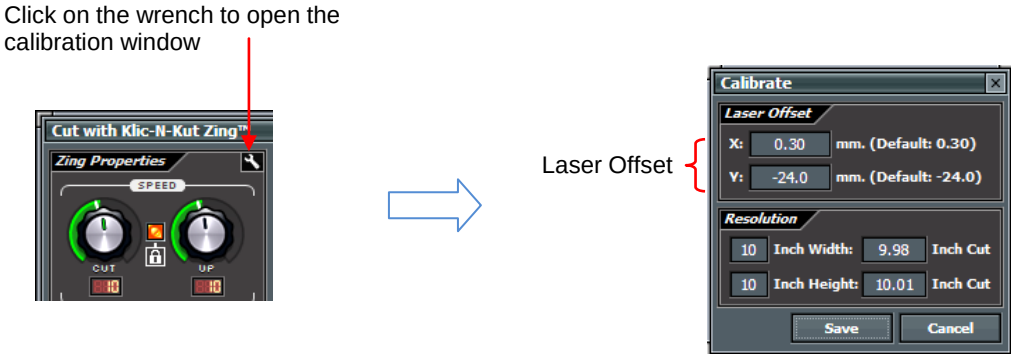
9.02 What is a PNC Calibration?

- In order to get precise PNC results, you must tweak the **Laser Offset** calibration. This is nothing more than determining how far away the laser light on your Zing is located relative to the tip of the blade. Because the laser is manually installed into a small hole inside the blade carriage, the distance from the laser light to the tip of the blade will vary from one Zing to the next. Also, you will want to use the same blade holder with all of your PNC applications, as the distance can also change with larger or smaller diameter holders.

- The distance is measured in mm in an X direction and in a Y direction:



- This calibration only needs to be done one time, for a given blade holder, and then you can record this calibration in case you ever need to install MTC on a new computer or you have to reformat the hard drive on your current computer. The units are in mm which are easier to measure in very small distances.
- The Zing plug-in has a set of default calibration numbers which will be close to your final numbers, but not exactly the same. To access these numbers, click on the tiny wrench icon indicated below and the **Calibrate** window will open:



- The process involves performing and repeating a PNC to see how much you need to adjust the **X** and **Y** values in order to get perfect results. And you SHOULD be able to get perfect PNC's! :)

9.03 PNC Procedure Part 1: Setting Up and Printing

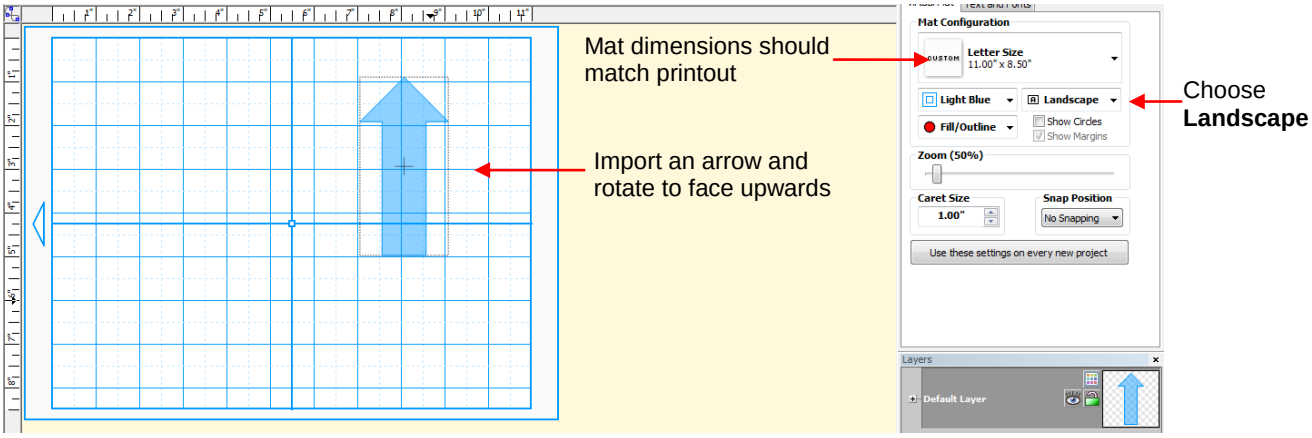
- What do you need before you begin a PNC? First, you need an image to print, a printer, the blade holder you plan to use for all of your PNC's, and a good night's sleep! The last requirement simply means that you don't want to start learning the PNC process when you are tired, stressed, or in a hurry. Mastering a PNC comes when you have the time to repeat it about 4 times in a row. At that point, you will not only have repeated the process enough times to feel very comfortable with the order of the steps, but you'll have your calibration perfected and then be ready to do future PNC's quickly and with ease

- While it is possible to do PNC's in either portrait or landscape mode, it is highly recommended that you select the same orientation you typically use for your other cutting in MTC. If you prefer to work in portrait, please skip to the ***Portrait Mode Option*** section following the ***Landscape Mode Option*** section.

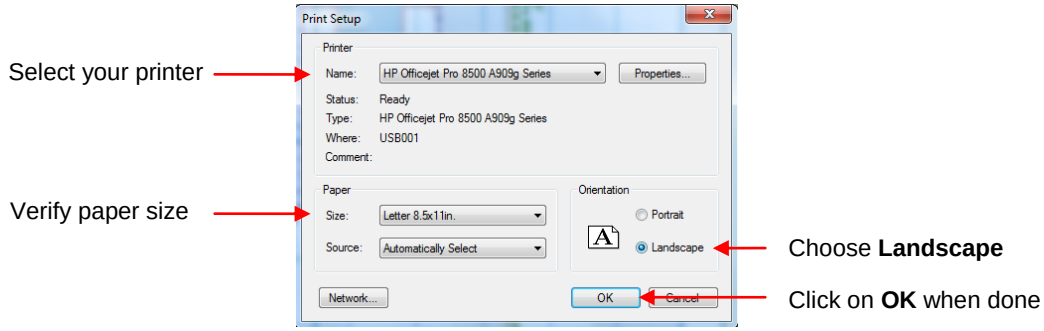
Landscape Mode Option

- To begin, create a new custom mat that's set for letter size or A4 or whatever size your printout will be. Refer to *Section 3.04* if you need instructions for creating a custom mat. Uncheck the **Margins** box. For letter size, make the **Width** 11" and the **Height** 8.5". For A4, set the **Width** to 11.69" and the **Height** to 8.27".
- Since you are reading the *Landscape Mode Option* section of the user manual, set the **Virtual Mat** to **Landscape** and select your new custom mat.

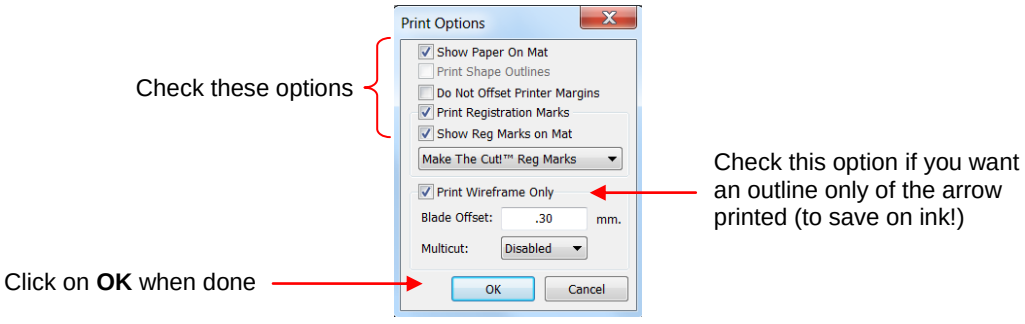
- What's the best image to use for the **Laser Offset** calibration? An arrow is ideal because you'll be able to quickly verify if you have the printout correctly placed on the cutting mat. Also, it's a great shape for seeing how to adjust your X and Y calibration numbers. You can use most any image, but to follow the rest of the tutorial more easily, an arrow from the **Basic Shapes** library is highly recommended:



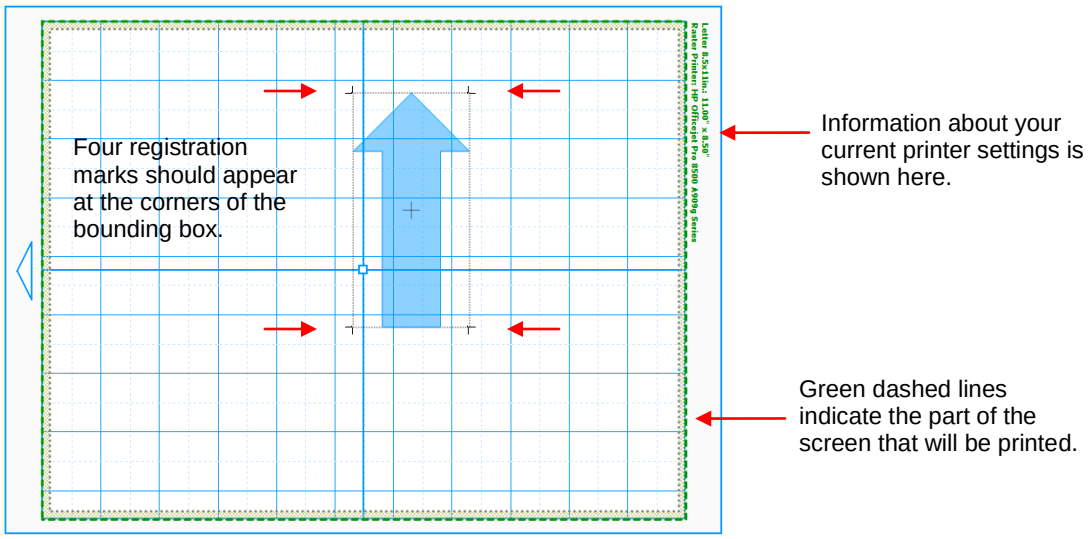
- Notice that the arrow is pointing upwards on the screen. Make sure your arrow is also pointed upwards! Later, when you print the arrow and place the paper on the mat, the arrow will be pointing to the right as you insert the mat into the Zing.
- Next, go to **File>Print Setup**, select the printer you plan to use, and set the **Orientation** to **Landscape**:



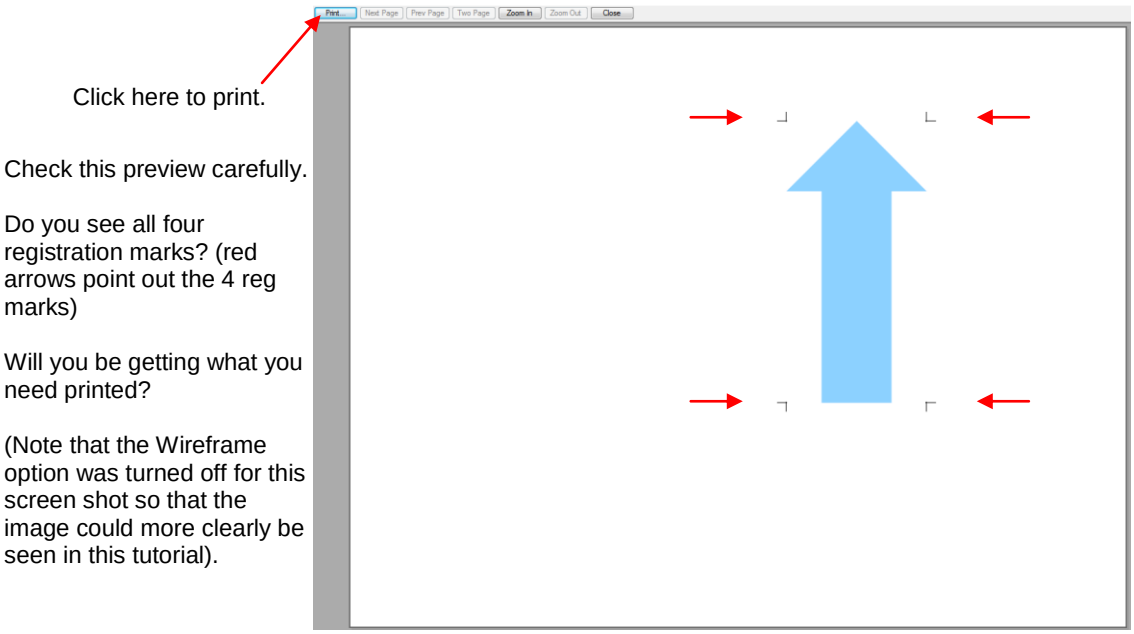
- Next, go to **File>Print Options** and mark the following boxes:


Check these options
Print Options
Show Paper On Mat
Print Shape Outlines
Do Not Offset Printer Margins
Print Registration Marks
Show Reg Marks on Mat
Make The Cut!™ Reg Marks
Print Wireframe Only
Blade Offset: .30 mm.
Multicut: Disabled
OK
Cancel
Check this option if you want an outline only of the arrow printed (to save on ink!)
Click on **OK** when done

- After clicking on **OK**, you should see the green borders on the **Virtual Mat**, indicating how the printout will be placed on the mat and where the arrow will be printed. If the arrow is outside the green borders, move it so that it falls within the boundaries:

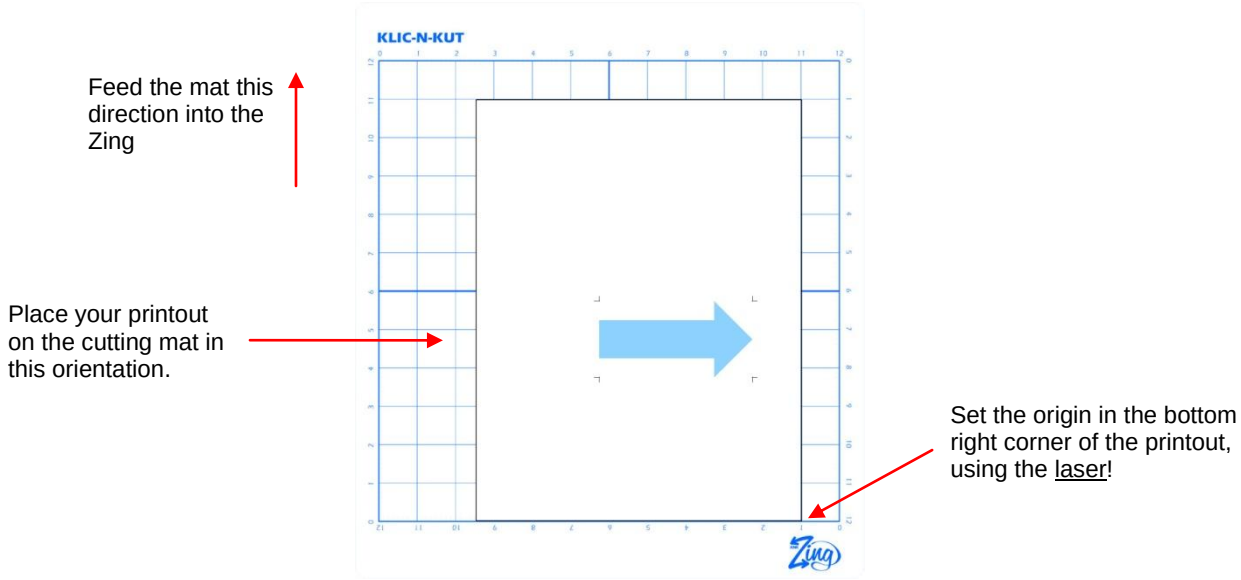


- Go to **File>Print Preview** and you will be able to see the arrow plus the four registration marks which should be aligned with the boundaries of the arrow:


Click here to print.
Check this preview carefully.
Do you see all four registration marks? (red arrows point out the 4 reg marks)
Will you be getting what you need printed?
(Note that the Wireframe option was turned off for this screen shot so that the image could more clearly be seen in this tutorial).

- Always make sure you can see the four registration marks before continuing since they are an integral part of the PNC process. If your print preview matches the one above and you see the four marks, click on the **Print** button. Also verify that what is being printed is what you need. For example, you may have added an extra shape to be cut, but you do not want it showing up in the printout. This is where you will want to use the **Layers** feature to control what will be printed, as well as what will be cut later.

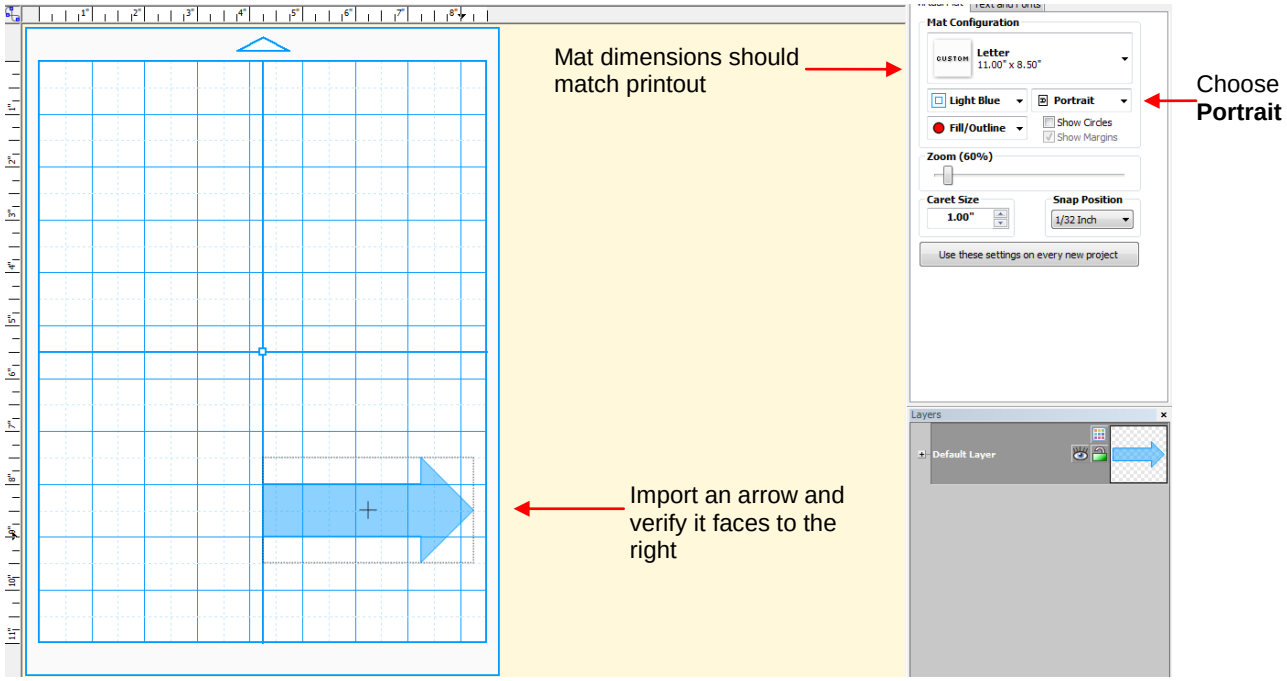
- You may want to print several (4 or 5) copies since you will want to repeat this process several times in order to get your calibration settings perfect.
- After printing, place the printout onto the mat. As you are facing the Zing, the printout should be on the mat in a portrait orientation with the arrow pointing towards the right end cap:


Feed the mat this direction into the Zing
Place your printout on the cutting mat in this orientation.
Set the origin in the bottom right corner of the printout, using the laser!
KLIC-N-KUT

- Go to Section 9.04 to continue with the next steps!

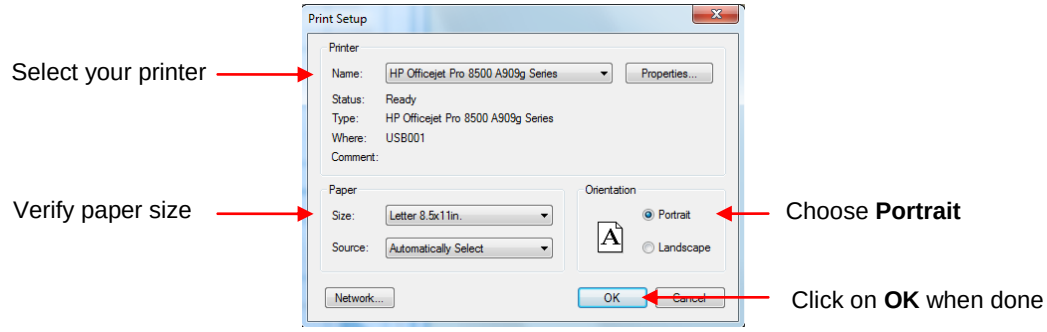
Portrait Mode Option

- To begin, create a new custom mat that's set for letter size or A4 or whatever size your printout will be. Refer to *Section 3.04* if you need instructions for creating a custom mat. Uncheck the **Margins** box. For letter size, make the **Width** 11" and the **Height** 8.5". For A4, set the **Width** to 11.69" and the **Height** to 8.27".
- Since you are reading the *Portrait Mode Option* section of the user manual, set the **Virtual Mat** to **Portrait** and select your new custom mat.
- What's the best image to use for the **Laser Offset** calibration? An arrow is ideal because you'll be able to quickly verify if you have the printout correctly placed on the cutting mat. Also, it's a great shape for seeing how to adjust your X and Y calibration numbers. You can use most any image, but to follow the rest of the tutorial more easily, an arrow from the **Basic Shapes** library is highly recommended:

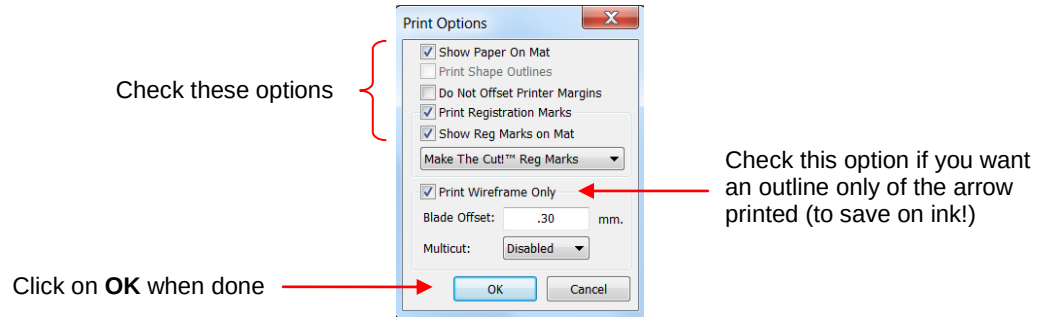


- Notice that the arrow is pointing to the right on the screen. Make sure your arrow is also pointed to the right!

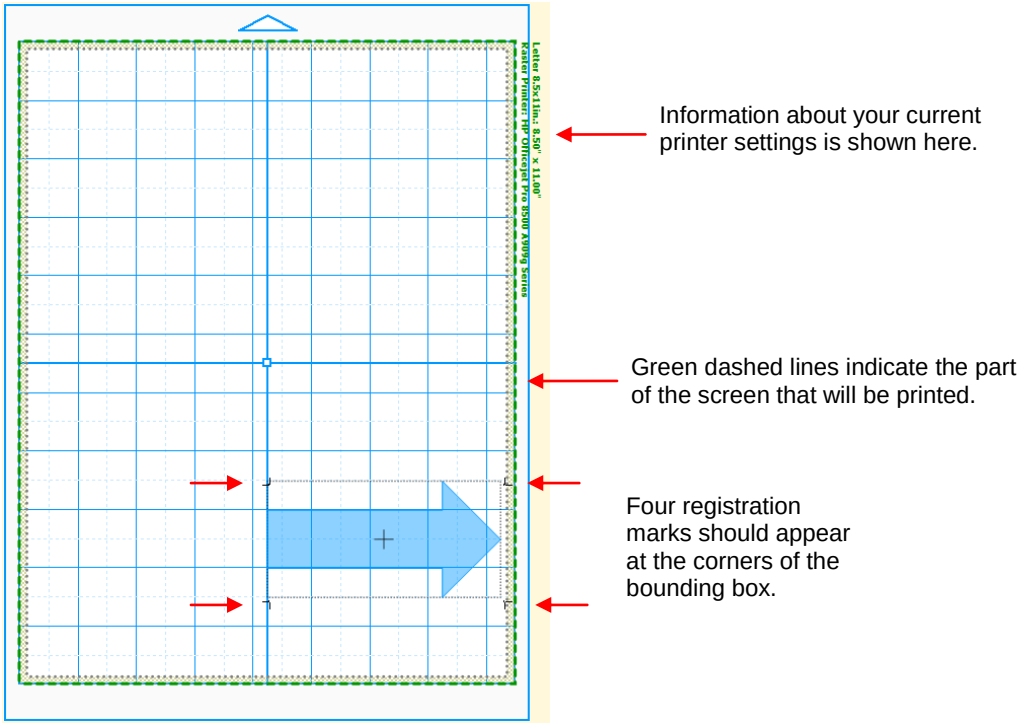
- Next, go to **File>Print Setup**, select the printer you plan to use, and set the **Orientation** to **Portrait:**



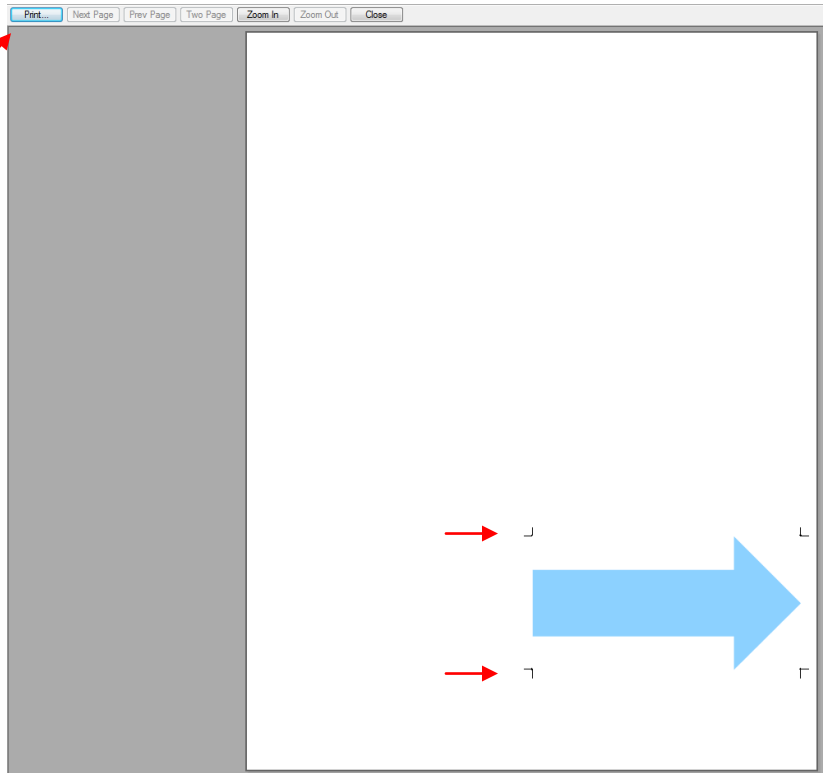
- Next, go to **File>Print Options** and mark the following boxes:



- After clicking on **OK**, you should see the green borders on the **Virtual Mat**, indicating how the printout will be placed on the mat and where the arrow will be printed. If the arrow is outside the green borders, move it so that it falls within the boundaries:



- Go to **File>Print Preview** and you will be able to see the arrow plus the four registration marks which should be aligned with the boundaries of the arrow:



Click here to print.

Check this preview carefully.

Do you see all four registration marks? (red arrows point out the 4 reg marks)

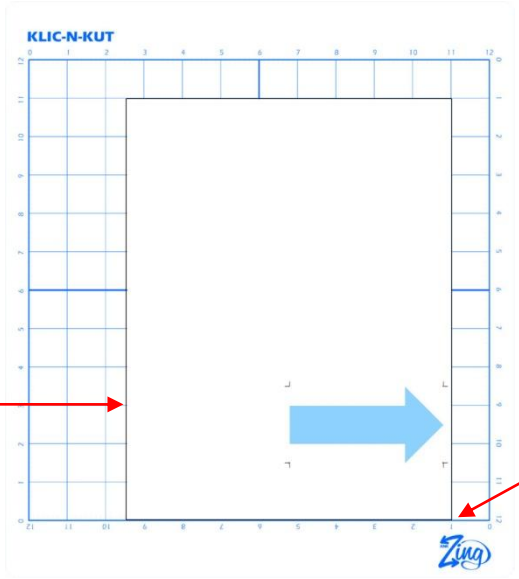
Will you be getting what you need printed?

(Note that the Wireframe option was turned off for this screen shot so that the image could more clearly be seen in this tutorial).

- Always make sure you can see those registration marks before continuing since they are an integral part of the PNC process. If your print preview matches the one above and you see the four marks, click on the **Print** button. Also verify that what is being printed is what you need. For example, you may have added an extra shape to be cut, but you do not want it showing up in the printout. This is where you will want to use the **Layers** feature to control what will be printed, as well as what will be cut later.

- You may want to print several (4 or 5) copies since you will want to repeat this process several times in order to get your calibration settings perfect.

- After printing, place the printout onto the mat, in the same orientation you see in the main window and insert the mat into the Zing. As you are facing the Zing, the printout should be on the mat in a portrait orientation with the arrow pointing towards the right end cap:



Feed the mat this direction into the Zing

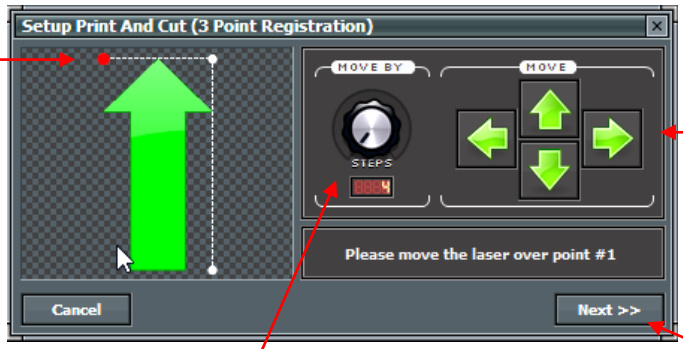
Place your printout on the cutting mat in this orientation.

Set the origin in the bottom right corner of the printout, using the laser!

9.04 PNC Procedure Part 2: Aligning and Calibrating

Aligning the Laser with the Registration Marks

- Click on the **Cut Project With** icon to go to the cut window. If you haven't yet performed a test cut, do so now using either the **Knife Point** or **WYSIWYG** setting. Perform the test cut in a location that won't be part of your final cut or use a scrap of the same material you are cutting.
- After the test cut is successful, click on the **Set Blade Origin** window. Move the laser light until it is directly over the lower right corner of the printout, as indicated above. Click on **Finished** to set the origin.
- Under **Cut Type**, select **Print And Cut**.
- Click on **Cut Project** and the laser should automatically move to within a very short distance of the first registration mark. The following window will open:



This dot will be flashing red.

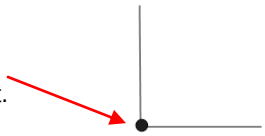
Note the orientation of this screen relative to your printout on the mat. This will be the top right reg mark as you face the KNK because your arrow should point to the right.

Click on arrows to move the laser light (or use the arrows on the keyboard)

Click on **Next** (or press the **Enter** key) after you have moved the laser to the corner of the reg mark

Controls step size for each arrow key movement

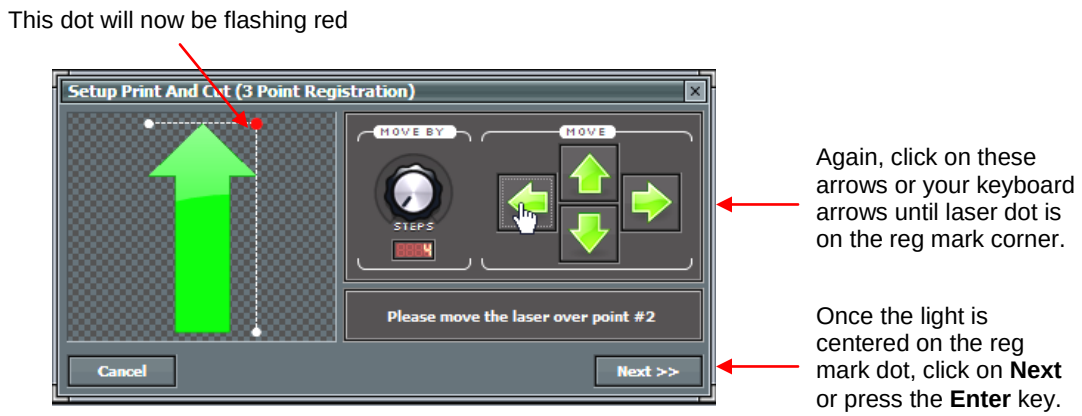
- Make sure the laser has moved within an inch or less of the registration mark indicated by the flashing red dot shown above. If not, you'll want to review the steps you've used so far to make sure you have all of the same settings shown and you have your printout on the mat in the same orientation as shown previously.
- The next step is to move the laser dot so that it is precisely at the corner of the printed registration mark. This window is very similar to the **Set Blade Origin** window. Click on the arrow keys on the screen or use the arrow keys on your keyboard. Important: once you are close to the mark, decrease the **Move By** setting to 4 so that you'll have precise control on alignment. Once the laser dot is dead-on, click on **Nex**t or press the **Enter** key.



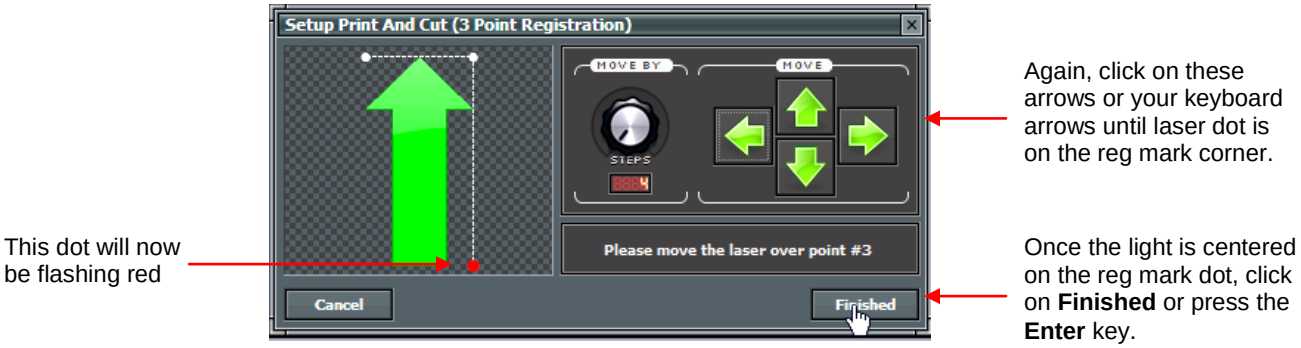
Move the laser light to the dead center of the printed dot.

You will notice that the intensity of the laser light will change when it is on top of the printed black lines. This can be very useful!

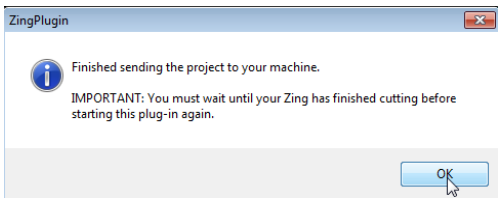
- The laser will move to the vicinity of the next registration mark and the flashing red light in the software moves to the same relative point:


This dot will now be flashing red
Setup Print And Cut (3 Point Registration)
MOVE BY
MOVE
STEPS
Please move the laser over point #2
Cancel
Next >>
Again, click on these arrows or your keyboard arrows until laser dot is on the reg mark corner.
Once the light is centered on the reg mark dot, click on **Next** or press the **Enter** key.

- Repeat the process with the final reg mark:


Setup Print And Cut (3 Point Registration)
MOVE BY
MOVE
STEPS
Please move the laser over point #3
Cancel
Finished
This dot will now be flashing red
Again, click on these arrows or your keyboard arrows until laser dot is on the reg mark corner.
Once the light is centered on the reg mark dot, click on **Finished** or press the **Enter** key.

- After clicking **Finished**, the following window will open and remind you to wait until the cutting has completed before going back to the **Cut with Klic-N-Kut Zing** window:

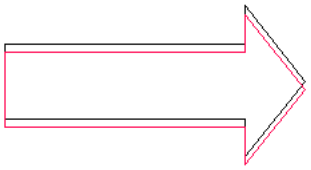

ZingPlugin
Finished sending the project to your machine.
IMPORTANT: You must wait until your Zing has finished cutting before starting this plug-in again.
OK

- Once you click on **OK**, the arrow shape will be cut out.

Adjusting the Laser Offset

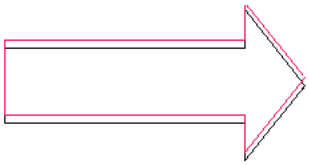
- After the print and cut is completed, examine how the cut lines were made relative to the printed lines. If the offset is large enough, use a mm ruler to measure. If the offset is very small, then just estimating will be fine as you refine your calibration.
- In the following diagram, the red lines represent the cut lines and the black lines represent the printed lines. Use this diagram to determine whether your **Offset** values need to raised or lowered for your laser:

If the red cut line is below the black print line, then decrease the value of X.



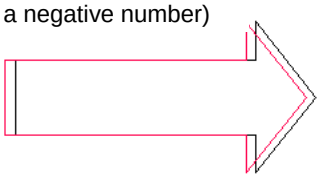
Red line is lower than black line: change X from 0.3 to 0.2.

If the red cut line is above the black print line, then increase the value of X.



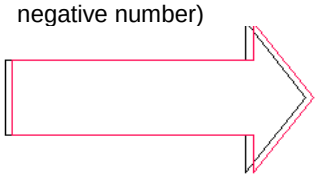
Red line is higher than black line: change X from 0.3 to 0.4.

If the red cut line is left of the black print line, then increase the value of Y. (Note: Y is a negative number)



Red line is left of black line: change Y from -24.0 to -23.9 (an increase to a negative number).

If the red cut line is right of the black print line, then decrease the value of Y. (Note: Y is a negative number)



Red line is 1mm right of black line: change Y from -24.0 to -24.1 (a decrease to a negative number).

- Modify your **X** and **Y Offset** values in the window shown at the end of *Section 9.02*.
- Repeat this same print and cut process to further tweak your Zing's **Laser Offset** values, until the arrow is cut out precisely. Remember that you should expect to get perfect results, so keep adjusting those X and Y values until you get there!

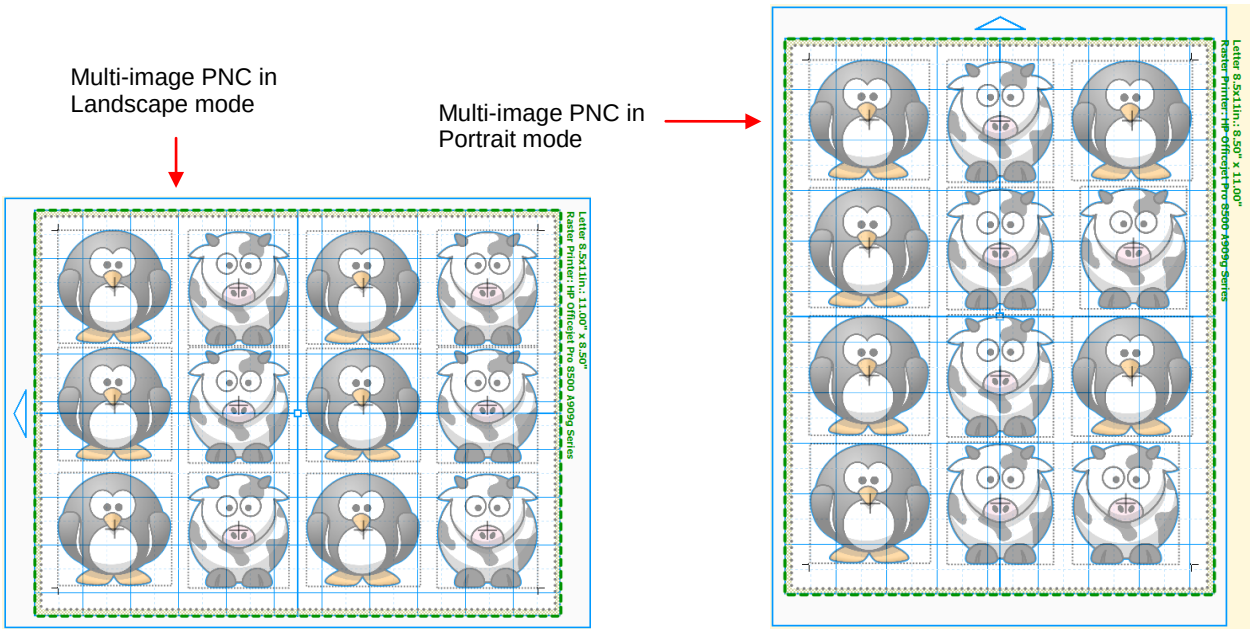
9.05 Print and Cut Tips

- When pixel tracing imported images, the trace lines will not necessarily be perfectly aligned with the image. This can result in tiny bits of white appearing in certain spots, suggesting the PNC wasn't accurate. Zoom in close on the image so that you can see the trace line following the outline of the image. Look at the same spots where the PNC didn't follow the image perfectly. This could be the cause of the inaccurate PNC. There are three ways of dealing with this situation:
  - ◊ Retrace the imported image, increasing the **Resample** setting. This will result in a tighter fit of the trace line to the original graphic.
  - ◊ Use **Node Editing** and **Segment Editing** to move the trace lines to more closely fit the original graphic. This is covered in detail in the last part of *Section 7.13.*
  - ◊ Create an inset line to use for cutting instead of the original trace line. This is presented in *Section 9.06 – PNC with an Inset Cut Line.*
- If a PNC is not precise and the cause is not the alignment of the trace lines, then try slowing down the speed. If the mat is moving numerous times, in and out of the cutter, a slight shifting can occur, especially at high speeds. Try reducing the **Cut** and **Up Speeds** to 9. If the problem still exists, try an **Up Speed** of 8.
- Remember that the calibration of the **Laser Offset** is specific to the blade holder type being used. Thus, if you change brands, the laser calibration will need to be modified.
- If your test arrow is cutting perfect, thus indicating you have the correct calibration, but your next print and cut is way off, then perhaps your situation is something outside of the ordinary. Please review the following section which covers several different scenarios in which a few extra steps will be required when setting up the layers for your print and cut.

9.06 Print and Cut Scenarios

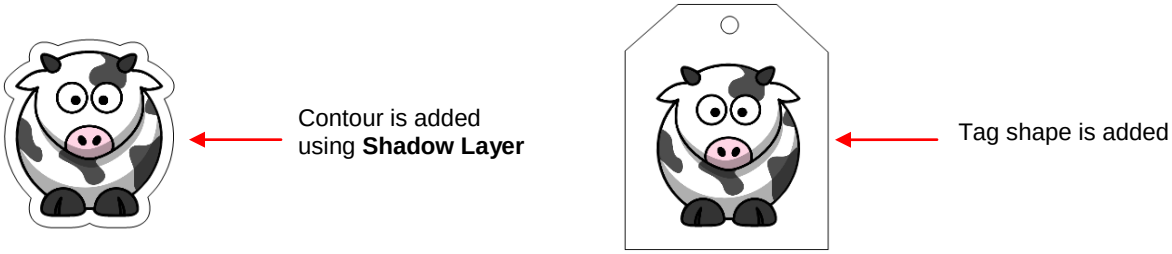
Cutting Multiple PNC Images on the Same Page

- When performing a PNC on multiple images (whether they are all the same image or different images), the procedure is the same. One set of four registration marks will be printed along the outside edges of the bounding area of ALL of the images on the page:

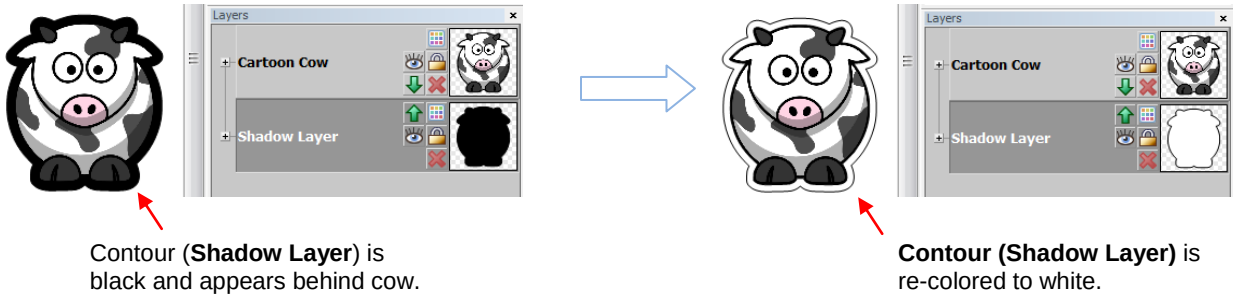


PNC With a Contour Shape Larger Than the Printed Image

- In *Section 9.01*, two other PNC applications were shown. In one case, an outside contour will be cut. In the other, an alternative shape is added, such as the tag shape shown below.

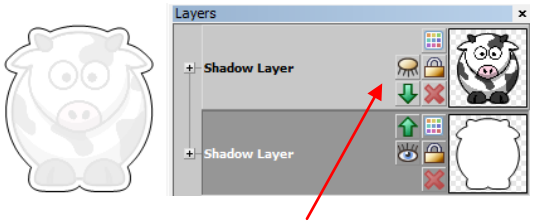


- In both cases, you need to include the outside shape in the printing process. This is because the outside shape determines where the registration marks are printed and then used for the PNC process. If the outside shapes are not printed, then the printed registration marks will be based on the original trace lines which will then later result in the outside cuts being misaligned.
- Since you do not want to see the outside shape printed, you need to change the color of that shape to white and move it behind the printed shape by making it the lowest layer:



- The print preview shows that only the original image will be printed, along with the registration marks. The contour is white and will not appear on the white printout:

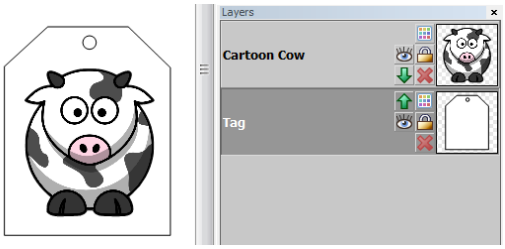
- For cutting, you will then hide the original traced image so that its trace line will not be cut:



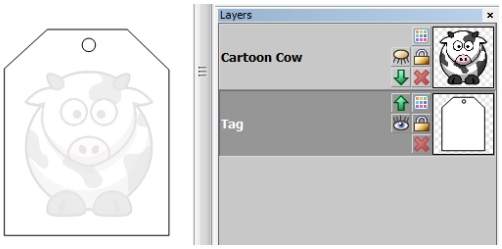
Original image is now hidden and will not cut.

- The cutting process proceeds as described in *Section 9.04*.

- In the other case, with the tag shape around the original traced image, the process is exactly the same. The tag must be re-colored to white so that it will not show up on your printout, but will be used to set the location of the printed registration marks. After printing, turn off that original layer and only send the tag layer to cut:



Printing: Both layers are showing; tag layer is white and on the bottom.

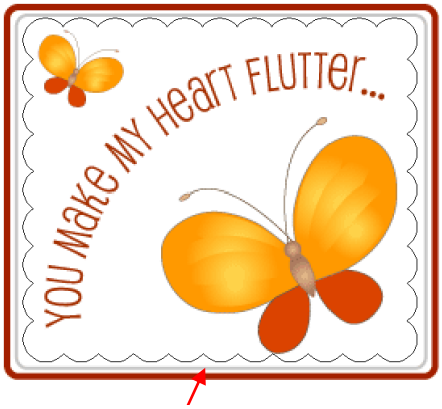


Cutting: Cow layer is hidden. Only tag layer is sent to cut.

PNC With a Contour Shape Smaller Than the Printed Image

- In this situation, a shape is going to be cut that is smaller than the outside boundaries of the imported graphic. For example, let's say a scalloped border is desired as the cut line:

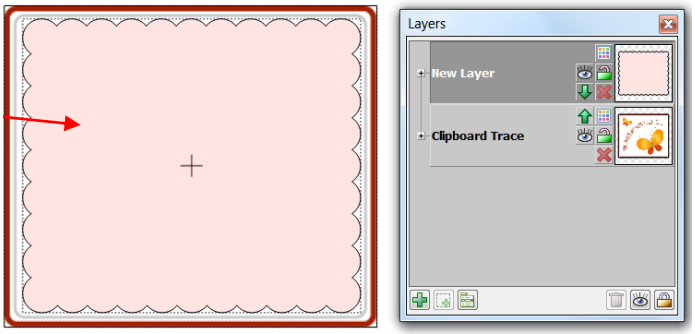
Original imported image

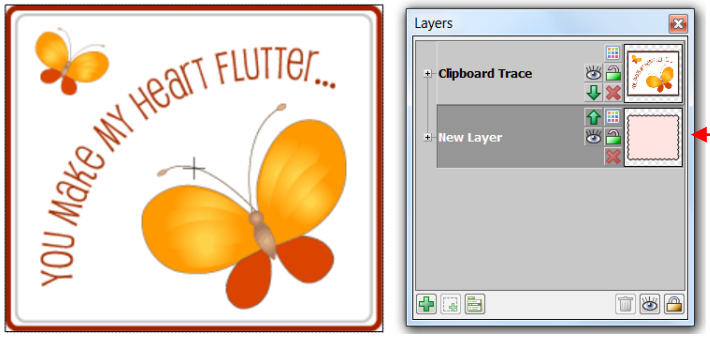


An interior scallop is to be added and cut.

- Since anything outside of the scallop will not be needed, that part will be eliminated. This is done by first arranging the scallop over the image and then moving the scallop layer to its own layer and to the bottom on the **Layers Bar**:

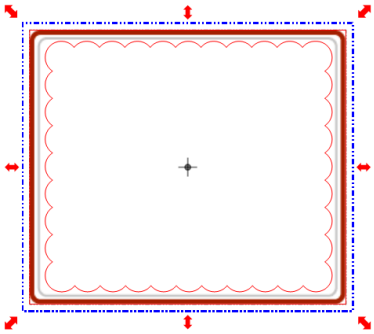
A scallop shape is added and aligned, as desired.





Scallop is moved to the bottom layer so that it is behind original image.

- Next, marquee-select both the original image and the scallop (or use **Ctrl+A** to **Select All**) and then apply the **Join** function from the **Magic Toolbar**. The scallop will now appear on top:



- Immediately apply the **Break** function from the **Magic Toolbar**. The original image now appears but with the scallop shape around it:

- Click elsewhere on the screen so nothing is selected. Then click on the image and drag one image away from the other:

This original can now be deleted.

New scalloped version

- The original can now be deleted and the scalloped version duplicated (if desired) and the PNC process conducted, as normal.

PNC With a Contour Shape Overlapping the Printed Image

- This situation is similar to the prior one, however in this case the scallop overlaps the borders of the printed image in such as way that it is smaller in one direction but larger in the other:

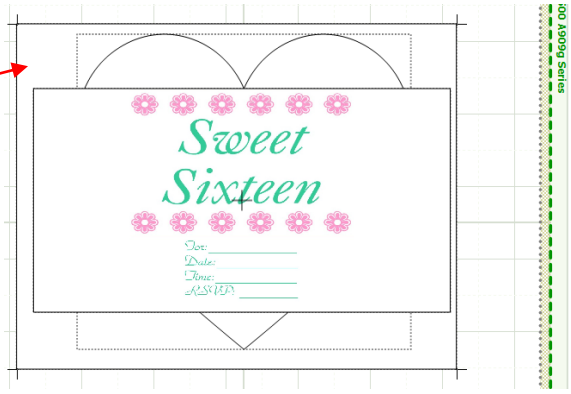
Original imported image

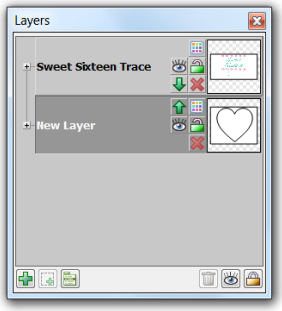
A heart shape is to be added and cut.

- In this case, the **Join** and **Break** method, shown in the previous example, does not work because the heart extends outside of the imported graphic. But the solution is still easy.

- Using the **Basic Shapes**, a white rectangle is added to the file. This rectangle should be large enough to fully enclose the other images and is placed on a layer lower than the imported graphic. Note that the heart layer doesn't actually need to be sent to the printer. But since you might forget to turn this layer back on after printing, it is recommended that it be set to white, along with the rectangle. In fact, the heart and rectangle can be placed on the same layer and moved to the bottom:

A large white rectangle is added to encompass both the original image and the heart



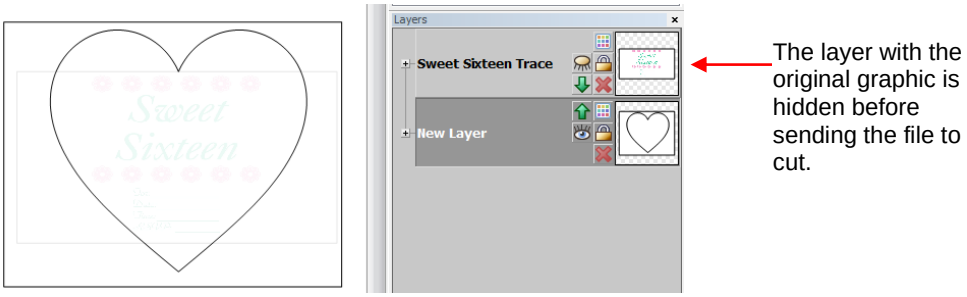


Rectangle and heart are both white and located on bottom layer.

All layers are sent to the print window.

- A print preview shows that only the original graphic will be printed. Note how the registration marks are printed based on the large white rectangle:

- After printing, the original graphic layer is turned off, so that only the heart and rectangle will be cut:

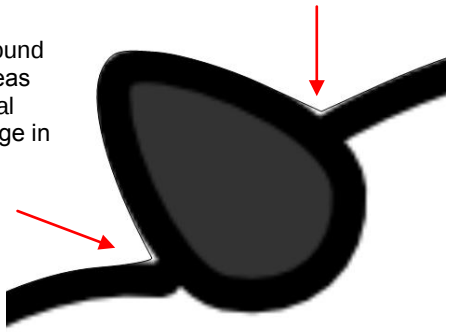


The layer with the original graphic is hidden before sending the file to cut.

PNC with an Inset Cut Line

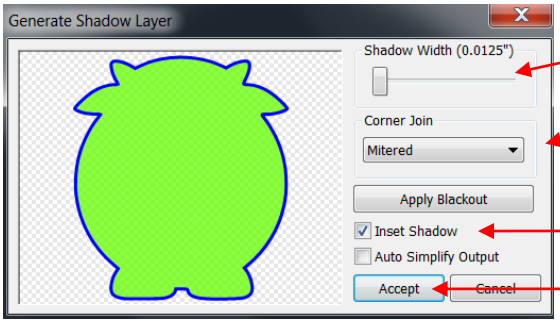
- A pixel trace can often have areas where the trace line (cut line) will be outside of the original image. This is especially true of tight interior corners or sharp turns on the image. This results in white areas appearing around the print and cut:

The red arrows indicate spots around our cow's left ear where white areas would show when cut. The original trace line doesn't quite fit the image in those spots.



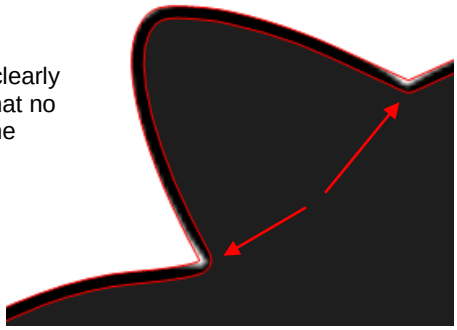
- At the end of *Section 7.13,* it was shown how to use node and segment editing to correct the trace line so that it better fits the original image. Sometimes, however, there may be more editing needed than would be practical to do. In these cases, an inset cut line can be created.
- Select the traced image and access the **Shadow Layer** function in any of the following ways:
  - ◊ Click on the **Shadow Layer** icon on the **Magic Toolbar**
  - ◊ Press **Ctrl+H**
  - ◊ Right click on the screen and select **Shape Magic>Shadow Layer**
  - ◊ Go to **Edit>Shape Magic>Shadow Layer.**

- Check the **Inset Shadow** box, select a **Corner Join** option and then scroll to the desired **Shadow Width**. Note that this is typically less than 0.03". Click on **Accept** when done.



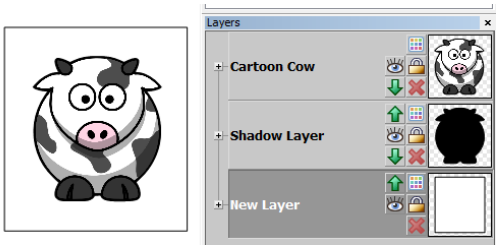
3. Scroll **Shadow Width** to desired setting. Even 0.0125 may be enough to eliminate white areas.
2. Select **Corner Join** type. Typically this would be **Mitered** unless you wish to round off some of the sharper corners. Choose **Rounded** instead.
1. Mark **Inset Shadow**
4. Click on **Accept** when done.

Note how the new inset line will clearly cut inside the printed image so that no white areas will appear around the cutout.



- Typically these inset lines are very close to the original trace lines and cutting both lines could lead to cutting issues, such as tearing or fine slivers of paper coming loose. For that reason, you will want to turn off the original trace lines so that they are not cut. However, the registration marks are tied to these original trace lines because they are larger than the new inset lines. If you simply turn off the original printed layer when you start the PNC process the print and cut will not work correctly. But, there is an easy way to make this work.
- Move the new inset cut line layer to the bottom of the **Layers Bar** so that it is behind the original imported image.
- Add a large white rectangle to the project. If the page will be filled with multiple objects then the rectangle should surround all of the images. If there is only one image, then the rectangle can be sized to fit just that image. Place on its own layer and move to the bottom:

One rectangle is placed around the original image and its inset.



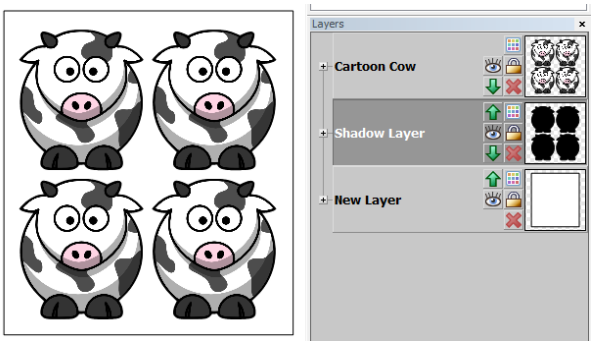
Original image should be top layer

Inset shadow

Surrounding white rectangle

If there are multiple images:

One rectangle is placed around all of the images and their insets.

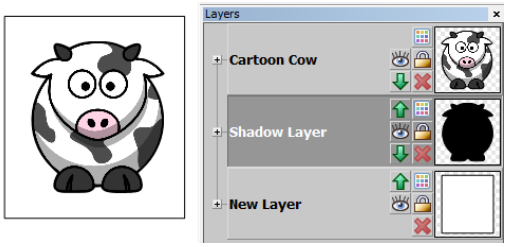


Original images should be top layer

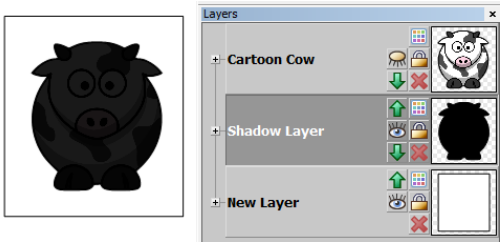
Inset shadows

Surrounding rectangle

- The rectangle layer must be turned on for both printing and cutting. Because the inset shadow layer is hidden behind the original images, it can also be left on for printing. However, when you are ready to cut, the original image should be hidden so that only the surrounding rectangle and the inset cut line layer are sent to cut.



All layers are left on for printing (although shadow layer is optional)



Turn off original image layer for PNC process. Make sure shadow (inset cutline) layer is showing, as well as rectangle layer

10. Applications

10.01 Cardstock and Paper

Video

- Remember to set your blade exposure to only cut through the material. For thin paper, just the tiniest tip of the blade will be needed. For thicker cardstock, a little more blade, but still not as much as you may think. Revisit Section 2.01 for reminders on both the setting of the blade length and the blade height.
- There are recommended forces shown in the *Suggested Settings for Various Materials* table near the end of Chapter 2. Use these as guidelines for your test cuts and then adjust, as needed. Remember to record your own successes!
- A speed of 10 should work well for most cutting of paper and cardstock. However, it is recommended that you slow the **Cut Speed** down to 9 if you feel 10 is too fast.
- For most paper and cardstock, use the red capped blade. For very thick or heavily textured cardstock, you may wish to use the blue capped blade.
- The cutting force will vary depending on the density of the paper or cardstock, any exposure to humidity, dullness of the blade, and even the dye used to color the material! Two passes can often be needed with some cardstock, regardless of the cutting force available.
- White core cardstock does not yield the same cutting quality as solid color core cardstocks.
- Some cardstock brands or types simply do not cut well. Use those for something else besides cutting intricate shapes. Other cardstock, such as Bazzill Smoothies, Worldwin Cutmates, and Michael's Recollections, cut beautifully.
- If your paper or cardstock is tearing, then you probably have too much blade exposed. Retract the blade into the blade holder so that only the tip of the blade (equal to the thickness of the material) is showing.
- If your cardstock has spots that didn't completely cut, flip the entire sheet over, and use sandpaper to sand the spots where the cuts didn't complete. You should be able to sand down to where the blade did cut in those spots and your design will then be released from the waste. This is the best way to maintain smooth outer edges.
- With each brand of cardstock, record the settings that worked well so that next time, you'll have a good starting point for your test cut.

10.02 Chipboard

Video

- There are many types of materials considered to be chipboard. Some can be cut by the KNK Zing and others cannot. The best guidelines are:
  - ◊ If the chipboard is thicker than the maximum blade length, then it cannot be cut.
  - ◊ If the chipboard is very stiff and cannot easily be bent, then it probably cannot be cut.
  - ◊ Thin flexible chipboard is the best choice. It's worthwhile finding a particular brand of chipboard to use in your projects so that you will know which blades and settings work best each time.
  - ◊ For a thicker look, consider cutting two copies of the same shape from thinner chipboard and adhering together, especially if the design is somewhat intricate.
- As with all materials, set the blade length to be just a fraction longer than the thickness of your chipboard and use the thick materials, blue capped blade.
- Chipboard can easily come loose from the mat. Try using masking tape or blue painter's tape around the outside edges of the chipboard to prevent the chipboard from slipping during cutting.

- Some thin soft chipboards may cut at a setting of 110, thus try this setting for your test cut. Increase in increments of 10, as needed. For denser, thicker chipboards, you will probably need to increase the pressure quite high, use several passes, and cut at a slow speed. The Zing offers 8 very slow speeds which can be the key to getting a cut that is both clean and precise.
- To simulate multi-cut during the testing phase, just repeat the cut using the same origin. The test cut will be performed in the same spot. Use one of the **Test Cut** choices or one of your own small shapes, to make sure a clean cut can be achieved before attempting to cut your larger shape or shapes.
- When cutting thicker materials, the blade holder needs to be raised in the blade holder seat to enhance the downward force. To do this, use the stack of three credit cards (or other similar items of height) recommended in *Section 2.01*. You can also cut test rings to slip over the bottom of the blade holder and used as spacers to lift the blade holder in the blade holder seat, and then note how many rings you needed. There is a ring file in the **Test Cut** menu that will cut a ring sized for the Zing blade holder.
- Some chipboard will produce a lot of "crumbs" during the cut and this can build up inside the blade holder as well as build up around the cut lines causing interference with the blade during the second pass. For this reason, some users will use canned air to blow the crumbs away from the surface between each pass. You may also need to clean the inside of the blade holder by removing the blade and taking it apart, so that any small pieces can be removed.

10.03 Vinyl

Video Video

- Vinyl can be cut with very little force. Start your test cut at about 10. For speed, you'll also want to use 10.
- Vinyl has a backing sheet which can serve as the carrier/mat during cutting. The vinyl needs to be at least 12" wide so that both sides will be gripped by the pinch wheels. If you are cutting from vinyl which is narrower than this or cutting from scraps, then use a cutting mat to hold the vinyl during the cut.
- On long cuts, it's important to have the vinyl aligned straight in the machine. Cut the needed length from the vinyl roll (adding a few inches for error allowance). Feed the vinyl about half way through the cutter and then drop the pinch wheels. Use the up and down arrows in the **Set Blade Origin** window to feed the vinyl in and out of the Zing, to make sure the vinyl stays aligned.
- Set the origin at least 1/2" away from the right side of the vinyl and a little ways in from the front.
- While there are many types and thickness of vinyl, in general it is very easy to cut. Thus, start with a conservative estimate for the force setting in the initial test cut, say 5. Use the red capped blade and start with barely any blade exposed. Do the test cut and then gently lift the corner of the vinyl from the backing sheet. Make sure the test cut is a clean cut and the blade did not penetrate the backing paper.
- For easier removal of the waste from the backing, add a rectangle around the perimeter of the image you are cutting. When weeding, you may need to cut away smaller waste sections at a time and discard. Otherwise, you risk having the waste inadvertently coming into contact with your cut shapes and sticking!
- If you store your vinyl in a warm location, the adhesive can be affected and that can then affect the cutting. Also note that some vinyl colors have a tendency to pull away from the backing sheet more easily than others. If you notice the vinyl pulling up in corners and tight spots, try slowing the cutting speed.

10.04 Fabric and Felt

Video

- It is highly recommend that the Zing Fabric Blade be used when cutting fabric and felt. It is designed to give sharper cutting in tight corners and points.
- It is not necessary to apply a stabilizer to all fabrics. While some thicker or stretchy fabrics will cut better with an iron-on stabilizer such as Wonder Under or Thermo-Web's Heat n' Bond, others will still yield excellent results when cut without it. Some users also prefer to iron their fabrics to freezer paper before cutting.

- With or without a stabilizer, it is highly recommend that a clean and sticky mat be used. If a stabilizer has been applied, then peel off the backing sheet and press the sticky side of the fabric to the sticky side of the mat. If no stabilizer has been applied, then brayer the fabric evenly to the mat. With some fabrics it may be necessary to use stickier mats that normal and tape the outside edges of the fabric to the mat.
- The best unstiffened (soft) felt to use is 100% wool. It cuts cleaner than other types. If the felt is pre-stiffened, then it should cut fine using the blue capped thick materials blade versus the fabric blade. Because of the thickness, you may need to tape the felt to the mat to prevent slippage during cutting.
- In general you will need to use 2 or 3 passes when cutting some fabrics and felts. It is necessary so that all fibers will be cleanly cut. Only simple shapes from thin fabrics will cut in one pass.
- For cutting force, it will depend on the fabric. Try your test cut at a setting of 75 and increase, as needed.

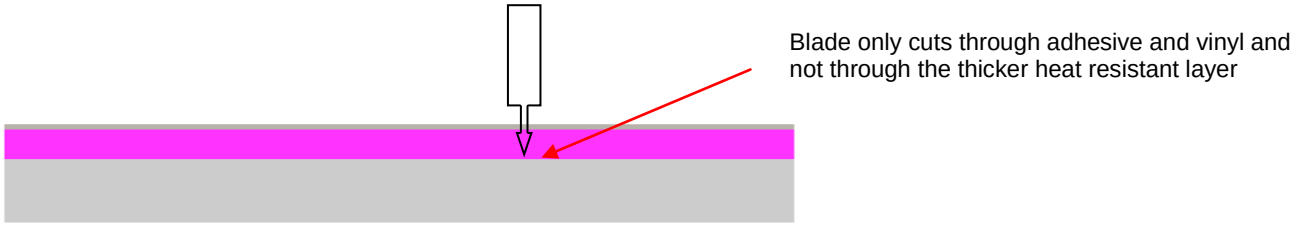
10.05 Iron-On Transfer

Video

Cutting Iron-On

- Iron-on transfer vinyl and flock consists of three layers:

- For cutting, have the **dull side up** (adhesive side up):



- The force required is ~20 - 30. Be sure to do a test cut first and then see if the vinyl layer will peel away from backing. You should be able to cut at a speed of 10.
- Remember to **reverse your image** before cutting! Because you are cutting with the adhesive side up, you'll be flipping the material over, after weeding, but before pressing. To mirror your image, select it and then apply the **Mirror** function.
- Cut around your image with scissors before weeding. Note that it's really hard to see the cut image, so be careful!
- Use a paper piercer or craft knife to grab onto a piece of the waste vinyl and then pull to remove. Remember to weed small internal parts, as well.

Adhering Iron-On

- Use a hot dry iron (cotton setting) and with steam turned off.
- Use a fairly firm surface…. Not a highly cushioned ironing board.
- Insert a cloth between the layers of a shirt in case adhesive melts through to other side
- Press shirt first to create a smooth flat dry surface.
- Arrange pattern on shirt, carefully centering.

- Press firmly for 10 full seconds. Do not move iron around… just press firmly.
- Allow to slightly cool and then remove top heat-resistant layer. If pattern begins to come up, then cover with the heat-resistant layer and immediately repress for another 10 seconds.
- Some people will also flip shirt inside out and press from other side for another 5 seconds.

10.06 Rhinestone Templates

Designing Rhinestone Patterns

- Refer to *Section 8.08* for specific instructions on designing rhinestone patterns in MTC. The most important things to remember are:
  - ◊ The circles should be roughly 0.4 mm larger than the actual stones you've purchased. For example, if you have 10SS stones, then design using 13SS stones in the software. This allows the stones to more easily fall into the holes during brushing.
  - ◊ Always size your shape first before converting into a rhinestone design. Once the circles are created for the pattern, the pattern cannot be resized without changing the size of those circles.

Cutting Rhinestone Template Material

- Rhinestone template material comes with a backing sheet similar to vinyl, thus it isn't absolutely necessary to use a cutting mat. However, because the sticky mat greatly improves the weeding process, it is strongly recommended.
- The first step is to check the size of the design you've created and then cut a piece of rhinestone template material that is at least 1" larger in both height and width compared to your design. It is beneficial to have a little bit of material around the edges of the design where excess rhinestones can still be brushed back over the design.
- Peel off the backing sheet first and press the rhinestone material to a clean sticky mat. Brayer firmly to make sure the rubber has excellent contact with the mat.
- Use a cutting force of about 85 and a speed of 10. Set Multi-cut to 2 times, again to aid in weeding the cut circles.

Weeding and Brushing in Rhinestones

- After cutting, brayer the template material again. As you lift the pattern, the majority of the little circles should remain stuck to the mat. If there are still circles attached, then press and lift on other parts of your cutting mat. Eventually, you should have the majority removed.
- Apply your patterns to a backing material such as chipboard or foam board. Make sure it's a different color from your rubber. You may wish to first cover the backing with clear mailing tape for a slicker, more permanent surface. Verify that none of the little circles are still attached to the back of the template, causing a "bump" in the pattern.
- Using an old toothbrush, brush some powder (talc, baking, facial) into the holes. Tap upside down to remove excess powder and then wipe the top of the pattern clean. The powder will stick to any adhesive inside the holes and prevent rhinestones from getting stuck in the holes.
- Use a Shur-Line Trim and Touch-up Pad to brush rhinestones in a circular motion. Keep brushing and you will find that the stones that landed upside down will be brushed out and correct ones will replace them. This device is essential to the ease and success of this important step!
- When ~95% of the pattern is correctly filled, then use tweezers, a toothpick, or just your finger to position the last few rhinestones in the pattern.

- Cut the rhinestone transfer tape to size and then press it down onto your stones. Press firmly but do not push the stones deep into the holes. If you have a problem with the stones jumping as you are dropping the transfer tape, then try using a Bounce sheet or anti-static spray on the tape before pressing.
- As you lift the tape, start in a corner and keep one side pressed down and watch to make sure all stones are being lifted. If a stone fails to lift, press back down to pick it up. Once the stones are lifted, you can now place the transfer tape back onto its backing or go ahead and press the stones to your shirt, other fabric, or even cardstock!
- Note that the transfer tape is reusable! You should be able to get 4 or 5 pressings from one piece, even though it becomes wrinkled from the pressing. Keep using until it doesn't pick up the stones well, then discard.

Heat Pressing Rhinestones

- If using your home iron to press the stones to a shirt:
  - ◊ Use a hot dry iron (cotton setting or higher).
  - ◊ Use a firm surface… not a highly cushioned ironing board
  - ◊ Insert a cloth between the layers of a shirt.
  - ◊ Press shirt first to create a smooth flat dry surface.
  - ◊ Arrange pattern on shirt, carefully centering.
  - ◊ Press firmly for 10 seconds. Then move about ¼" in case steam holes were over areas of some stones and then press firmly for another 10 seconds.
  - ◊ Move to another area of stones and repeat.
  - ◊ Flip shirt inside out and press for another 10 seconds on side where stones are applied.
  - ◊ Allow to thoroughly cool before removing clear transfer tape.
- If using a heat press to press the stones to a shirt:
  - ◊ Set the temperature to ~ 330—350 degrees and set the pressure to medium.
  - ◊ Press garment first for a flat dry surface.
  - ◊ Arrange pattern on shirt, carefully centering. Press for 10-12 seconds.
  - ◊ Peel cold, cover with Teflon sheet, and re-press another 10-12 seconds. Alternatively, flip the shirt inside out and press from the back for 10-12 seconds.
  - ◊ Use a lower temp if pressing on 50/50 cotton poly fabric. Use a higher temperature on denim.

Extra tips on Rhinestone Applications

- If you are combining iron-on transfer with rhinestones, do not press the rhinestones onto the iron-on vinyl. While it will appear to have worked well, the stones will fall off once the garment is laundered. When using both, create a contour line around your iron-on pattern for the stones.
- Pressing rhinestones to cardstock also works very well. If pressing onto the front of a greeting card, unfold the card first.
- After pressing and allowing to cool, use your fingernail or an old credit card/gift card to scrape the pattern to see if any stones come loose. If so, replace those stones with new ones and press again.

10.07 Drawing with a Pen or Glue Pen

- With the Zing, you can draw with any pen, pencil, marker, or glue pen, that can be securely gripped by the blade holder seat and not be dragging across the material. The optional Zing Pen Holder can also be used

to hold thinner pens. The advantage of the Pen Holder is that the center of the pen will be positioned the same as the blade on the Zing Blade Holder, thus allowing you to draw with the pen and then cut out a shape. The pen will draw in the correct relative positions to the cut:

Outside cut circle is aligned with pen drawn circle

Outside cut circle is NOT aligned with pen drawn circle

- If you do not own the Zing Pen Holder or you wish to use a pen which does not fit into the holder, then refer to the following section: *Adjusting for Differences in Diameters of Tools and Blade Holders.*
- Remember that you must set the **Cut Type** to **WYSIWYG** so that the shapes will not be moved to the where you set the blade tip origin. They will instead be drawn or cut where they are located on the **Virtual Mat.**
- Always score or emboss first and then cut. Turn off the **Blade Offset** for drawing because it is not needed and can give undesired results. But then remember to turn it back on for the cut process.
- Do not have the pen positioned too low in the blade holder seat or the tip of the pen could drag across the paper when moving from one shape to the next.
- Make sure your shapes will not be drawn where either pinch wheel travels over the material. Otherwise, the ink or glue could smear. This may also be a problem with the small press rings. You may want to slide the rings to either side of the Zing (next to the pinch rollers), so that they will not smear the ink or glue during the drawing process.
- The Sakura Quickie glue pens work well in the Zing. They will fit into the Zing Pen Holder, as well as directly into the blade holder seat (if alignment with cutting isn't needed).
- The open path fonts available in MTC should work well for drawing as they provide single drawn lines and curves versus an outline form. Refer to *Section 5.11.*
- The following video shows how to use the Zing pen holder and the blade holder for an aligned "draw and cut."

Video

- The following video shows how to use a glue pen and the blade holder for an aligned "draw and cut."

Video

Adjusting for the Difference in Diameters of Tools and Blade Holders

- If you plan to use two tools with different diameters, then you will face an alignment problem. In the following example, two glasses and an inner circle will be drawn with a silver gel pen and then the outside circle cut out.

- Because the gel pen is thin, it sits further back in the blade holder seat than the blade holder. With no adjustments made, the resulting drawn image and cut circle were out of alignment:

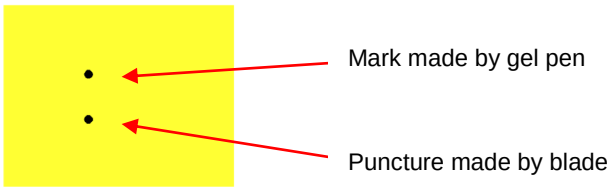
- However, there is a straight-forward method one can use to compensate for tools with different diameters. Basically, this method is one where you mark onto a Post-it note or small rectangle of paper, the relative locations of the gel pen and the blade tip. Then you use the location of the blade holder to set the origin for the gel pen and, in turn, use the location of the gel pen to set the origin for the blade holder! This will then allow your pen drawings and cut lines to be properly aligned. Here are the steps:

  ◊ Align a small Post-it note on your gridded mat with the sticky side down. If you do not have a Post-it note, then just use a small rectangle of paper and apply Scotch tape to secure the paper to the mat. Place the blade holder into the Zing blade holder seat. With the Zing turned off, slide the carriage so that the blade holder is over the note. Drop the pinch wheels so that the mat cannot move.

  ◊ Press the blade holder down so that you puncture the Post-it note.

  ◊ Without moving the blade carriage, remove the blade holder and insert the gel pen. Press down to mark the paper.

  ◊ Remove the mat and use a pencil to darken the puncture mark. Your Post-it note might look something like this:

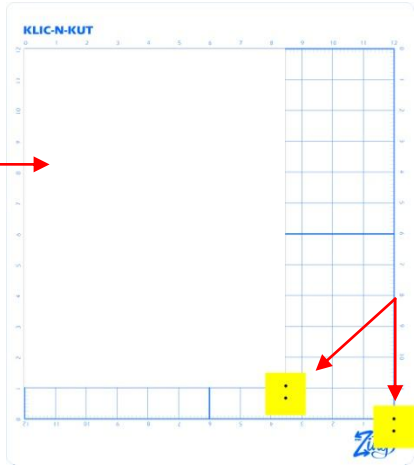


  ◊ Align the cardstock (or other material you plan to use) onto the mat and load into the Zing.

  ◊ Insert the pen into the blade holder seat and move to the approximate location of where you will set the origin in the **Set Blade Origin** window.

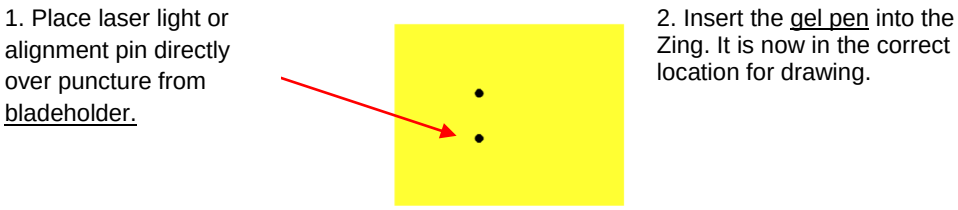
  ◊ Position the Post-it note where you plan to set the origin (laser light) for your **WYSIWYG** cut. If you normally set it at the lower right corner of the Zing mat, then place the Post-it note in that position so that the dots are close to that spot. If the Post-it note extends outside of the mat, trim it so that it doesn't get caught on the mat guide. If you normally set the laser light at the lower right corner of your material (because you change your Virtual Mat to match your material dimensions), then place the Post-it note there. Note that the location of the drawing and cutting will be aligned with one another perfectly but may be slightly different from the location on your Virtual Mat. Thus, take that into account so that the shapes are not drawn nor cut off your material.

Align cardstock in same manner as you normally do when using **WYSIWYG Cut Mode**.



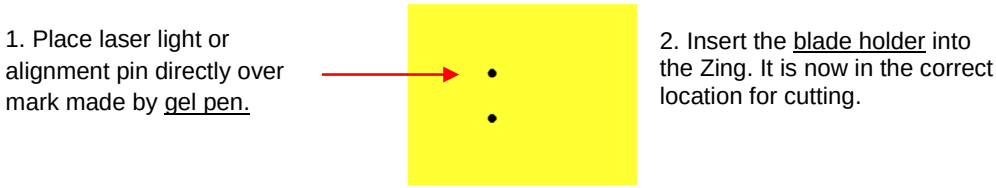
Place Post-in note at bottom right corner of grid **OR** at bottom right corner of paper if you changed the Virtual Mat to match paper dimensions versus actual mat dimensions.

  ◊ Move the laser light to the exact location of the <u>blade puncture</u> (NOT the gel pen mark). Once you have it directly over that mark, click on **Finished** in the **Set Blade Origin** window.


1. Place laser light or alignment pin directly over puncture from bladeholder.
2. Insert the gel pen into the Zing. It is now in the correct location for drawing.

◊ Select the layer with the shape(s) to be drawn and execute the "cut."

◊ Move the laser light to the exact location of the gel pen mark (NOT the blade puncture). Once you have it directly over that mark, click on **Finished** in the **Set Blade Origin** window.


1. Place laser light or alignment pin directly over mark made by gel pen.
2. Insert the blade holder into the Zing. It is now in the correct location for cutting.

◊ Select the layer with the shape(s) to be cut and execute the cut. The resulting gel pen lines and cut will now be aligned:

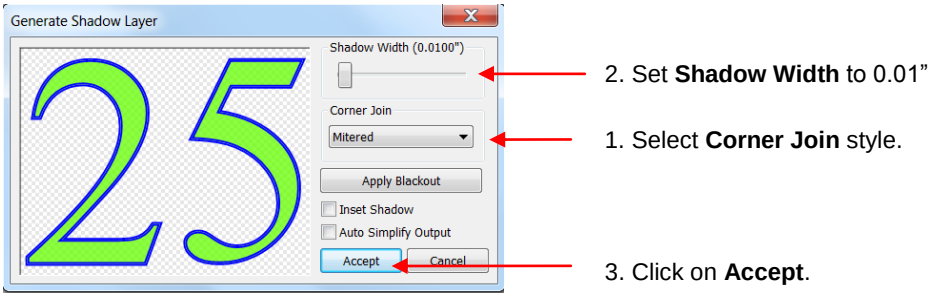
10.08 Embossing and Scoring

- The Zing Embossing Tool has two different sized embossing heads. The smaller one is recommended when scoring cardstock for fold-up projects, such as pop-up cards, gift bags, and small boxes. Either head can be used for embossing shapes.
- When the project involves both embossing/scoring and cutting, you will need to use **WYSIWYG** for the cut mode so that the shapes will be aligned.
- When embossing, it is recommend that a soft material be place beneath the paper or cardstock to allow a deeper impression to be made. One excellent material to use is non-slip shelf liner. Even though the surface is somewhat uneven, you will obtain very good results. Other materials which can be used include rhinestone rubber, craft foam, and felt. Make sure the material is well adhered to the mat (tape it down, if necessary). Then tape your paper or cardstock to the top of this material.
- When scoring, the paper or cardstock can be applied directly to the mat, just as you do for cutting. This makes it much simpler when you need to score and then immediately cut.
- Make sure you do some tests first to get the best settings for the scoring or embossing you need. For scoring cardstock, this typically involves a higher force (~150) and two or three passes. Refer to the Suggested Settings table at the end of this chapter. If you have a soft material beneath your paper/cardstock, then a lower force can be used, but you may still need several passes. Also raise the tool in the blade holder seat the same way you do with the blade holder, to get more force invoked.
- Remember to turn off the **Blade Offset** setting when scoring or embossing but turn it back on when you get ready to cut.
- When embossing paper or cardstock, it is recommended that you use the **Shadow Layer** function to create a very small outline and inline, say 0.01". These tiny offset lines will then produce a slightly thicker overall

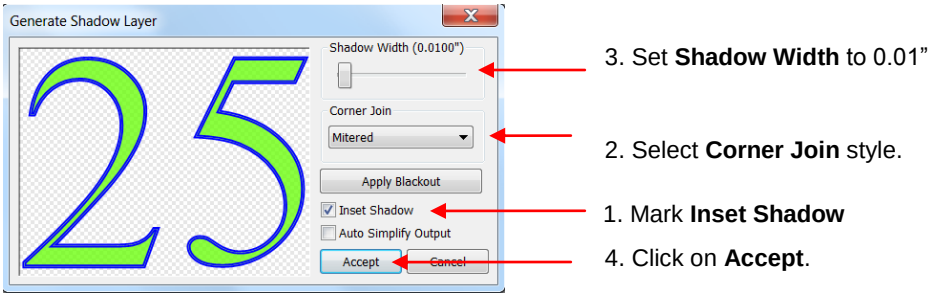
outline of your shapes. This works better than fill embossing which can stress the cardstock and cause wrinkling. Here are the steps:

◊ Create the shape you wish to emboss. In this example, the numbers 25 are used for a 25th wedding anniversary:

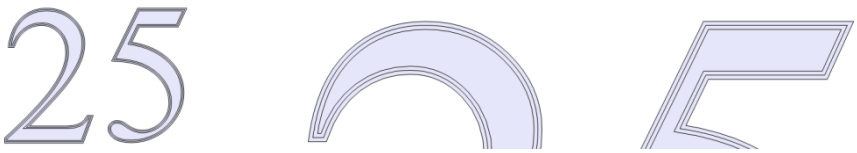
- Select the shape and go to the **Shadow Layer** function: and perform the following:



- After clicking on **Accept**, re-select just the original image, and go to the **Shadow Layer** function again and perform the following:



- Now you have three versions of your shape and when using the embossing tool, you will have a thicker outline of the shape:



- The following video shows the Zing embossing tool being used to emboss a design onto metal.

Video

10.09 Engraving Metal

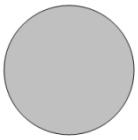
- The same basic guidelines apply to engraving as in embossing and scoring:
  - ◊ You will probably need to use the **WYSIWYG** cut mode.
  - ◊ You will need to turn off the **Blade Offset** setting for engraving.
  - ◊ You will probably need to use multiple passes to get the desired results.

- On softer metals, you may not want the engraving tip too far above the metal as it can leave a pock mark when it drops to start engraving. If possible, test on scraps first.
- Refer to the Suggested Settings table at the end of this chapter or force and speed settings on various materials. Note that you can engrave on materials that cannot be cut on the Zing, such as jewelry charms, dog tags, and trophy plates.
- The open path fonts available in MTC should work well for engraving. They contain single path lines and curves versus outlines and are usually more desirable when engraving letters. Refer to *Section 5.11.*

Project: Engraving a Dog Tag

- When engraving items that are already cut (such as the items listed previously), it can sometimes be tricky getting the perfect alignment you need. Here's a method that works well (thank you to Michelle Hessler for posting this technique):
  - ◊ Carefully measure the dimensions of the item. For example, it if is a circular dog tag, then measure the diameter. Recreate the shape in MTC and size it to be the same. In the follow example, the diameter of the dog tag is 1-1/8", so a circle of the same size is drawn:

Photo of actual dog tag

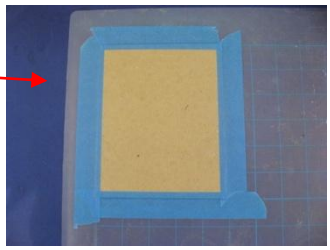


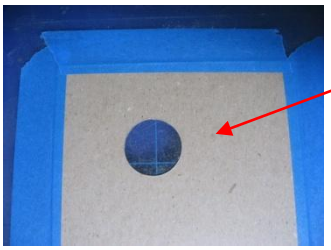
Circle created in MTC at the same diameter as the tag

  - ◊ Because this shape will be cut from another material to use in the alignment process, the shape is resized to be a tiny bit larger. For a circle, you can simply resize it in the **Sel Properties Bar**. If the shape is something non-symmetrical, then use the **Shadow Function** with a **Shadow Width** of about 0.04".
  - ◊ Next the desired lettering and/or shapes are added. In this case, the dog's name and a phone number with "Please Call" are chosen. Because there is also a hole near the top of this dog tag, a ¼" high square is added just to show the top limit of where the lettering could be located. This is deleted as soon as the lettering is added and positioned:

  - ◊ The lettering is placed on one layer in MTC while the circle is place on a different layer. A sheet of thin chipboard is placed on the cutting mat. Using **WYSIWYG** cut mode, the circle is sent to cut:

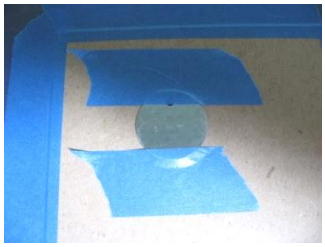
Tape chipboard to top of mat





Circle layer is sent to cut and removed from the rest of the chipboard.

  - ◊ After the hole is cut in the chipboard, the mat is left in place in the Zing! <u>This is important</u>. The cut circle is removed and the actual dog tag is placed inside the cut hole. Tape is used to secure the tag:



◊ The blade holder is replaced with the Zing Engraving Tool. In the **Set Blade Origin** window, **Use Last** is selected so that the laser light will return to the same location as was used for the cut. **Blade Offset** is turned off and a **Force** of 140 and 3 **Multicut** passes are set. The letter is engraved in the same location on the tag as was designed on the Virtual Mat:

10.10 Using the Punch Tool

- The Zing Punch Tool can be used for creating decorative designs (such as pergamano and other parchment arts) or for creating small holes for paper embroidery.
- To protect the mat and the thin punch, it is recommended that a thick soft material be used as a cushion between the paper/cardstock and the cutting mat. Suggested materials that will work well include non-slip shelf liner, craft foam, and stiffened felt.
- The same basic principles apply to punching as in embossing and scoring:
  - ◊ You will probably need to use the **WYSIWYG** cut mode.
  - ◊ You will need to turn off the **Blade Offset** setting.
  - ◊ You will possibly need to use multiple passes to get the desired results.
- Refer to the Suggested Settings table at the end of this chapter or force and speed settings on various materials.
- To design a punch pattern, use the **Rhinestone** function presented in *Section 8.08*, however select the smallest size available from the drop down menu. This will create holes suitable in size for paper embroidery. After clicking on **Accept**, you may need to apply a **Break** in order to respace and tweak your overall design.
- If the circle sizes from the **Rhinestone** function produce holes that are larger than what you desire, then repeat the design process but first, make your overall design twice as large as you plan to use. In the **Rhinestone** function window, again select the smallest size, but double the spacing. Then, after clicking on **Accept**, reduce the overall design by half! Your holes will now cut at half the size of the first design you created.
- As with the other tools, testing is necessary to get the perfect settings for the particular material you are punching. Don't forget to set the punch tip height higher, just as you do with the blade holder, in order to get more force invoked.

10.11 Additional Applications

- The following videos present more Zing applications. This section will be expanded as more experiences are shared and recommended settings are detailed.

Balsa:

Icing Sheets:

Suggested Settings for Various Accessories[1]

Important: Remember to turn **Blade Offset** back on after using accessory tools and before cutting with your blade again!

Application/Material	Tool	Force	Speed (Cut/Up)	# Passes	Surface	Other Comments
Drawing on paper	Sharpie Marker	20	10/10	1	Mat	Pen was almost touching paper in order to be grasped by front screw
Drawing on paper	Sharpie Liquid Pencil	40	10/10	2	Mat	Used 2 passes because pencil hesitates to start drawing each time.
Drawing with glue on paper	Sakura Quickie Glue Pen	30	9/10	2	Mat	2 passes provided a little more glue. Also used 0.01" Inset Shadow and Outset Shadow to provide a thicker outline of shape.
Embossing Cardstock - Georgia Pacific 100#	Embossing - large end	95	9/10	3	Shelf Liner	Used 0.01" Inset Shadow and Outset Shadow to provide a thicker outline of shape.
Scoring Cardstock - Georgia Pacific 100#	Embossing - small end	150	10/10	2	Shelf Liner	
Scoring Cardstock - Recollections	Embossing - small end	150	10/10	2	Shelf Liner	
Engraving Vellum - 48#	Engraving	100	10/10	2	Mat	Used 0.01" Inset Shadow and Outset Shadow to provide a thicker outline of shape.
Engraving Vellum - thin	Engraving	50	10/10	2	Mat	Used 0.01" Inset Shadow and Outset Shadow to provide a thicker outline of shape.
Engraving Metal Dog Tag	Engraving	140	9/10	3	Mat	
Punching Cardstock - Georgia Pacific 100#	Punching	85	10/10	2	Shelf Liner	

[1]These settings should be used for the initial testing. Adjustments may be necessary based on variations in the material, surface beneath paper, humidity, condition of the cutting mat, etc. Most tests were done with a blade tip height equal to a stack 25 Post-it notes or 12 Georgia Pacific 100# cardstock pieces.

Settings Form for Accessory Tools

Application/Material	Tool	Force	Speed (Cut/Up)	# Passes	Surface	Other Comments

Appendix A Key Board Shortcuts

Shortcut	Icon	Description	Menu, Other Location
Standard Functions			
Ctrl+N		Open a new file/project	File>New
Ctrl+N		Open a new file/project	Tab bar
Ctrl+O		Open an existing .mtc file/project	File>Open
Ctrl+S		Save a file/project	File>Save
Ctrl+Shift+P		Print	File>Print
Ctrl+Z		Undo last action	Edit>Undo
Ctrl+Y		Redo last action	Edit>Redo
Ctrl+F6		Go to next window/project	Top left icon in Menu Bar
Ctrl+Tab		Go to next project/project	Window>Next Window
Ctrl+F4		Close MTC	Top left icon in Menu Bar
Alt+F4		Close MTC	
Selecting Shapes			
Ctrl+A		Select all	Edit>Select All
Shift+Esc		Select next shape	Edit>Previous Shape
Shift+Tab		Select previous shape	Edit>Next Shape
Esc		Select none	Edit>Select None
Shift		Hold Shift while clicking on shapes to add to selection	
Duplicating Shapes			
Ctrl+C		Copy to clipboard	Edit>Copy
Ctrl+V		Paste from clipboard	Edit>Paste
Ctrl+Shift+V		Paste in Place from clipboard	Edit>Paste in Place
Ctrl+D		Create duplicate copies of selected shape (s)	Edit>Duplicate
Cutting/Deleting Shapes			
Ctrl+X		Cut to clipboard	Edit>Cut
Del		Delete selected shape(s)	Edit>Delete
Shift+Del		Delete all shapes in the file	Edit>Delete All
Ctrl+Shift+R		Delete all shapes smaller than specified area (W x H)	Edit>Delete By Area

Shortcut	Icon	Description	Menu, Other Location

Manipulating Shapes

[		Arrange shapes with equal vertical spacing	Edit>Align & Space>Space>Vertically
]		Arrange shapes with equal horizonatal spacing	Edit>Align & Space>Space>Horizontally
B		Align selected shapes along bottom of bottommost shape	Edit>Align & Space>Align>Bottom
L		Align selected shapes along left side of leftmost shape	Edit>Align & Space>Align>Left
R		Align selected shapes along right side of rightmost shape	Edit>Align & Space>Align>Right
T		Align selected shapes along top of uppermost shape	Edit>Align & Space>Align>Top
S		Center selected shapes	Edit>Align & Space>Align>Stack
H		Align selected shapes along horizontal center	Edit>Align & Space>Align>Horz. Center
V		Align selected shapes along vertical center	Edit>Align & Space>Align>Vert. Center
Ctrl+F		Vertically flip selected shape(s)	Edit>Shape Magic>Flip
Ctrl+M		Horizontally mirror selected shape(s)	Edit>Shape Magic>Mirror
Ctrl+G		Rotate selected shape(s) 90 degrees clockwise	Edit>Shape Magic>Rotate 90 deg
Shift+Drag corner of a textured shape		Resizes texture as well as shape	
Ctrl+Drag middle right on selected shapes		Modify spacing between selected shapes	

Text and Fonts Icons

		Bold	On Text and Fonts tab of Main Bar
		Italic	On Text and Fonts tab of Main Bar
		Refresh installed fonts list	On Text and Fonts tab of Main Bar
		Open TTF/OTF font file	On Text and Fonts tab of Main Bar
		Open Add Text Group window	On Text and Fonts tab of Main Bar

Shortcut	Icon	Description	Menu, Other Location

Editing Tools

Ctrl+B		Break a shape into all of its individual paths	Edit>Shape Magic>Break
Ctrl+J		Join selected shapes into a single shape	Edit>Shape Magic>Join
Ctrl+P		Split typed text into individual characters (glyphs)	Edit>Shape Magic>Split
Ctrl+R		Remove all interior paths from selected shapes	Edit>Shape Magic>Blackout
Ctrl+L		Break apart selected shape(s) into layers	Edit>Shape Magic>Layer
Ctrl+Shift+F		Apply "Flatten Paths" function	Edit>Shape Magic> Advanced>Flatten Paths
Ctrl+Shift+J		Smooth and simplify shapes	Edit>Shape Magic> Advanced>Smooth & Simplify
Ctrl+Shift+M		Open "Fuse and Weld" window	Edit>Shape Magic> Advanced>Fuse n' Weld
Ctrl+Shift+Z		Open "Auto Simplify" window to reduce nodes	Edit>Shape Magic> Advanced>Auto Simplify Path
		Toggle Auto Simplify Welds	Edit>Shape Magic> Advanced>Auto Simplify Welds

Designing Tools

Ctrl+E		Open "Lattice" window	Edit>Shape Magic>Lattice
Ctrl+H		Open "Generate Shadow Layer" window	Edit>Shape Magic>Shadow Layer
Ctrl+K		Open "Rhinestone" window	Edit>Shape Magic>Rhinestone
Ctrl+Q		*Open "Conical Warp" window*	Edit>Shape Magic>Conical Warp
Ctrl+Shift+K		Apply "Thin Paths" function to create a center line trace	Edit>Shape Magic> Advanced>Thin Paths
Ctrl+Shift+N		Open "Tiler" window	Edit>Shape Magic> Advanced>Tiler…
Ctrl+T		Open "Bézier Warp" window	Edit>Shape Magic>Bezier Warp
Ctrl+U		Open "Boolean Join" window	Edit>Shape Magic>Boolean Join
Ctrl+W		Weld selected shapes to remove overlap	Edit>Shape Magic>Weld
Ctrl+Drag one shape onto another		Open "Wrap Objects to Path" window	

Shortcut	Icon	Description	Menu, Other Location

Importing

Ctrl+Shift+A		Open "Make The Cut Gallery" import/download window	File>Import>From MTC Gallery
Ctrl+Shift+B		Open "Basic shapes" window import window	File>Import>From Basic Shapes
Ctrl+Shift+D		Open "Open Adobe File" import window	File>Import>Vector PDF/PS/EPS/AI
Ctrl+Shift+G		Open "Open SVG File" import window	File>Import>SVG/SVGZ File
Ctrl+Shift+H		Open "Open Font File" import window	File>Import>True/Open Type Font File
Ctrl+Shift+H		Open "Open Font File" import window	Icon on Text and Fonts tab, Main Bar
Ctrl+Shift+Q		Open "Open SCUT/2 File" import window	File>Import>SCUT/SCUT2 File
Ctrl+Shift+T		Open "Pixel Trace" import window	File>Import>Pixel Trace
		Open "Lettering Delights" import window	File>Import>From Lettering Delights

Exporting

Ctrl+Shift+L		Open "Add Basic shape" window	File>Export>Sel. To Basic Shapes
Ctrl+Shift+S		Open "Save SVG as" window	File>Export>Sel. To SVG File
Ctrl+Shift+W		Open "Upload" window to upload as SVG file to MTC Gallery	File>Export>Sel. As SVG To MTC Gallery

Node Editing Tools

W		Toggle Node Mode Toolbar on/off	Upper left corner of Virtual Mat
F1		Open Node Mode Toolbar	On the node editing toolbar
F2		Edit Paths at Node Level	On the node editing toolbar
F3		Add Basic shapes	On the node editing toolbar
F4		Draw Freehand Lines	On the node editing toolbar
F5		Draw Bezier Curves and Straight Lines	On the node editing toolbar
F6		Erase sections of paths	On the node editing toolbar
F7		Slice shapes and Lines	On the node editing toolbar
F8		Measure shape lengths and angles	On the node editing toolbar

Shortcut	Icon	Description	Menu, Other Location

Viewing and Zooming Tools

1		Zoom to 100%	View>Zoom To>100%
2		Zoom to 20%	View>Zoom To>20%
3		Moves display to selected shape(s), keeps current zoom level	
4		Zoom to 300%	View>Zoom To>300%
5		Zoom to 500%	View>Zoom To>500%
6		Zoom to 600%	View>Zoom To>600%
7		Zoom to 700%	View>Zoom To>700%
8		Zoom to 800%	View>Zoom To>800%
9		Zoom to 900%	View>Zoom To>900%
0		Zoom to 1000%	View>Zoom To>1000%
+		Zoom in	(1) + key on the numeric keypad; (2) File Toolbar
-		Zoom out	(1) - key on the numeric keypad; (2) File Toolbar
D		Display textures while other shapes are selected	
Roll mouse wheel		Move workspace up and own	
Ctrl+roll mouse wheel		Zoom in and out, centered on location of mouse cursor	
Spacebar+drag left mouse button		Pan workspace	
Ctrl+Shift+I		Toggle the showing of nodes for selected shapes	Edit>Shape Magic> Advanced>Nodes On Mat

Opening Windows

Ctrl+I		Open "Add Text Group" window	Icon on Text and Fonts tab, Main Bar
Ctrl+Shift+U		Open "Color" window	Right click>Change Color/Texture/Line>Color
Ctrl+Shift+O		Open "Choose Texture" window	Right click>Change Color/Texture/Line>Texture
Ctrl+Shift+Y		Open "Choose Line Style" window	Right click>Change Color/Texture/Line>Line
Ctrl+Shift+X		Open "Shape View window"	Edit>Shape Magic> Advanced>View Path Detail
		Open "Project Notes" window	View>Notes Window

Shortcut	Icon	Description	Menu, Other Location
Layers Window Icons			
		Move this layer up	On any given layer
		Layer is visible	On any given layer
		Layer is hidden	On any given layer
		Move this layer down	On any given layer
		Set color, texture or line style for this layer	On any given layer
		Layer is unlocked	On any given layer
		Layer is visible	On any given layer
		Delete this layer	On any given layer
		Create a new layer	Bottom of Layers window
		Place current selection on a new layer	Bottom of Layers window
		Open Layer Options Menu	Bottom of Layers window
		Delete empty layers	Bottom of Layers window
		Open Visible Toggle menu	Bottom of Layers window
		Open Lock Toggle menu	Bottom of Layers window
Output			
Ctrl+Shift+C		Open controller window for current default cutter	Cut Project With>current default sel. Cutter
Ctrl+Shift+E		Show preview of cut shapes	Cut Project With>Cut Preview
Ctrl+Shift+E		Show preview of cut shapes	Edit>Shape Magic> Advanced>Tiler…
Ctrl+Shift+P		Print	File>Print
		Reverse Paths (change direction of cut on selected shape)	Edit>Shape Magic> Advanced>Reverse Paths
Zing Plug-In			
F1		Cut Project	Connected>Cut Project
F2		Toggle Laser On/Off	Connected>Toggle Laser On (or Off)
F3		Reconnect	Connected>Connection>Reconnect
F5		Create Preset	Drop Down Menu>Presets>Create Preset

Appendix B Troubleshooting FAQ's

Communication Issues

*Nothing happens when I try to use the arrow keys in the **Set Blade Origin** window. But it shows that the Zing is connected in the **Cut with Klic-N-Kut Zing** window.*

- Most likely the wrong COM Port is selected. Click on the green **Connected** button and then select **Connection**. The correct COM Port will be the one that says "USB-Serial".

There is no "USB-Serial" COM Port connection available in the list of available COM ports.

- Unplug the Zing from your computer. In MTC, go to **Help>Advanced>Download and Install FTDI D2XX Drivers**. Once the drivers have installed, reboot your computer. When your computer has finished restarting, reconnect the Zing to your computer. You should get a pop-up that will finish the installation.
- If this fails, again unplug the Zing from your computer. Download and install the drivers directly from the manufacturer:

  http://www.ftdichip.com/Drivers/D2XX.htm

  At this site, look for the text "Microsoft WHQL certified. It is also available as a setup executable" and you can click on that link. Once you have downloaded and installed the drivers reboot your computer. When your computer has finished restarting, reconnect the Zing to your computer. You should get a pop-up that will finish the installation. If you continue to have trouble, contact your KNK dealer.

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*The **Cut Project With** window shows the Zing as **Not Connected.***

- Check the USB cable to make sure it is properly inserted into the Zing and into a USB port on your computer. Then close the **Cut Project With** window and reopen. Try pressing **F3** if it still says "**Not Connected**."
- Click on the **Not Connected** button and then choose **Connection** and pick the **COM Port** which says "USB-Serial COM X" from the list.
- Contact your dealer for assistance if the Zing continues to not be recognized. You will probably need to reinstall the driver for the Zing.

The Zing connection gets dropped even though it's not been turned off or the software closed.

- This is probably due to a setting in Windows 7. Open Windows **Control Panel** and select **System and Security**. Then select **Power Options**. **Balanced** should be selected. To the right of that, click on **Change plan settings**.

  Click on **Change advanced power settings**. Open the **USB Settings** option in the list and locate **USB Selective**. Change to **Disabled** and then click on **OK.** This keeps the USB on a normal mode, not a save power mode.

Operating Issues

When I first turn on the Zing, the blade carriage moves to the right and starts making a terrible noise!

- There is a clear rubber piece that is located just under the top of the Zing and can sometimes become rolled slightly out of place when the foam protector is inserted or removed. Move that rubber piece so that the flat side is down and the blade carriage will be able to clear it as it moves to the right and into home position. If this does not solve the issue, contact KNK USA at 800-268-3672 or your KNK dealer.

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*When I click on **Cut Project**, the blade carriage returns to the **Home Origin** instead of executing my cut.*

- At the time of this writing, there is a bug in the MTC plug-in for the Zing. If you have used the up arrow in the **Set Blade Origin** window to move the mat by more than 1", the cut will not be executed. Raise the pinch wheel lever and manually slide the mat or your materials closer to where you will need to set the origin so that the mat/material will not need to be moved back by more than 1 inch.

My mat is rotating when the Zing starts to cut!

- Both pinch wheels need to be gripping the mat. Move the mat either left or right so that it is under both wheels.

I cannot get one (or both) of the pinch wheel levers to move correctly.

Video

- Use a screwdriver to tighten the screw on the lever. Remember that clockwise is tighter, counterclockwise is looser. Avoid loosening as there is a ball and spring which will fall out and it's a bit tricky getting the lever reassembled and screwed back into place.
- Apply some WD40 to a cotton swab and dab it on the inside plate where the pinch roller bar enters the end cap.

Help! I turned the screw on my lever the wrong way and the spring and ball fell out!

Video

1. Unplug the power cable and USB cable. Then slide the blade carriage towards the opposite end so that you will have room to use a screwdriver.
2. Place the Zing on its side so that the ball bearing holes are facing up.
3. Place the ball bearing into the hole that would position the roller bar down. Refer to the opposite side to make sure you have the correct hole.
4. Place one end of the spring into the hole of the lever and then align the other end of the spring over the ball bearing. Press down on the lever and hold it in place. Rotate so that the screw hole is aligned with the hole needed for attaching the lever to the Zing.
5. Insert the screw and use a screwdriver to turn the screw clockwise until tight.

Cutting Issues

I am getting large diagonal lines sliced through all of my cuts.

- Your Make-The-Cut software is still in trial mode. You need to register your copy of MTC using the activation pin that came on the software CD. Here is the link: https://www.make-the-cut.com/Register.aspx

---

My shapes are drawing off the mat. What am I doing wrong?

- If you are using **Knife Point**, make sure you are setting the origin based on the position of the test pen or blade holder, not the laser light. The laser light is used for **WYSIWYG** mode.
- Check whether your **Virtual Mat** is in **Portrait** or **Landscape** mode. This will change whether your image appears the same way you see it on the screen or rotated 90 degrees relative to the screen.
- Details on these various settings are covered in *Section 2.07*.

When drawing with the test pen, I have extra lines being drawn.

- Make sure you raise the pen in the blade holder seat on the Zing before tightening the front screw. The blade holder seat needs to be able to drop the pen down when it reaches the spot to draw the shape. Otherwise, the pen tip will be dragging across the paper from the origin to where the shape will begin to be drawn and then back to the origin at the end of the "cut".

My cut started out fine but by the end of the cut, it's not cutting through the material.

- Make sure the blade holder housing doesn't have any bits of material inside of it.
- Make sure the front screw is tight so that the blade holder isn't slipping upwards during the cut.

My cut is clean in some places but not in others. Why am I not getting consistent cutting?

- Try raising the blade holder a little ways up in the blade holder seat (~1/16"). If the blade is too close to the material, not enough force is being invoked.
- Make sure your material is pressed firmly onto a clean and sticky mat (assuming you are cutting a material such as paper or cardstock).
- Your material may require two passes. If a material is not homogenous or if it is heavily textured, using two passes is sometimes needed to get the entire shape cut cleanly. Also, if the material has been exposed to humidity, then it will become difficult to cut in one pass. You can dry paper and cardstock in a 100 degree oven for half an hour or so to release the moisture.

I am getting a lot of tearing in my cuts.

- A number of things can cause tearing so work through this check list:

    ◊ Too much blade is exposed. If you see cut lines in your mat, shorten the blade exposure. You should only be cutting through the material itself.
    ◊ The blade is chipped. Try a different blade.
    ◊ The paper is not adhered well to the mat. Make sure the mat is clean, sticky, and the paper is pressed smoothly and evenly on the surface.
    ◊ You may be using too much cutting force. Try reducing it and doing test cuts.
    ◊ You may have too many nodes in the shape. Refer to *Section 7.02*
    ◊ The material itself may be subject to tearing, especially on intricate cuts. Also, if the cardstock has been exposed to humidity, then the moisture in the material can make it difficult to cut cleanly. Try blow drying the cardstock or placing in a slightly warm oven for half an hour. Worst case, try a different cardstock.

My shapes are not completely cutting out. They are still attached to the waste part of the material.

- Make sure you have turned the **Blade Offset** back to the appropriate value for the blade you are using. If the **Offset** is at 0, then your closed paths will not quite close when cutting with a blade.

My cardstock is not cutting all the way through. I have the blade all the way out and using the maximum force.

- Please refer to Section 2.01. It's important to only have as much blade exposed as is necessary to penetrate the cardstock. You may also need to raise the blade tip height. Reduce your force back to suggested values for the material you are cutting and do a test cut.
- Do not use more pressure than is needed. If the cardstock is cutting through about 90% of the cut, then turn on Multi-cut. Some cardstocks do better with a second pass.

Software Issues

Make –The-Cut will not accept the registration number on the CD that came with my Zing.

- The **Activation Pin** is the number on the CD envelope. This number needs to be used for registering your copy of the software at the web site shown on the Quick Start Guide (also shown in *Section 1.06*). Once you register, you will be given a **Registration Number** to then use in Make-The-Cut.

I have a very complicated file that I am attempting to edit. Make-The-Cut keeps crashing.

- You can allocate more memory by going to **Help>Advanced>Limit Undo Size** and changing from 0 (unlimited) to a set number of undo steps to save in memory. Change to the most steps you feel you might need – for example, 5.

I have a new computer and I want to install Make-The-Cut. I cannot locate my registration number for MTC.

- Go to this link to have your registration number emailed to you at the email address you used when registering your copy of MTC: http://www.make-the-cut.com/LostRegKey.aspx
- If the email address you used for registering is no longer valid, go to this link and submit a support ticket to MTC: http://www.make-the-cut.com/Support/

When I import vector files into MTC, I lose the individual colors. All of the shapes end up the same color. How do I retain the colors that were used in the original program?

- Currently only files copied and pasted from Inkscape or from KNK (or ACS) Studio will retain original colors. When importing other vector formats, you will need to recolor the shapes yourself. If possible, import the file with the shapes grouped by color to make it easier to recolor them.

When I import SVG files, the shapes are really small. How can I get them to import the correct size?

- In the SVG import window, you need to check a box called **Use Actual** and then enter the **DPI** based on which program created the SVG. Refer to *Section 4.03.*

I am trying to import a PDF file but nothing is showing up.

- Only vector PDF files will import into MTC. If the PDF was created from a raster image, then you will need to import the file in a raster format (e.g. .jpg, .bmp, .png, etc) using the pixel trace feature in MTC.

I am trying to move a node but it keeps jumping. I can't just move it where I want.

- You probably have **Snapping** turned on. Check the current setting on the **Virtual Mat** and switch to **No Snapping**.

When trying to resize an image by using the boxes at the corner of the image, I am having a problem controlling the sizing.

- You probably have **Snapping** turned on. Check the current setting on the **Virtual Mat** and switch to **No Snapping**.

---

*I have **Pixel Traced** an image and imported it for a print and cut. But my original image is faded. How do I import the image so that it looks like the original?*

- On the **Virtual Mat**, select **Contrast** from the list of available colors. Note that your image will print just like the original regardless of the mat color selected. But if you prefer to see your image in full color, then use the **Contrast** option.

I am trying to resize an image for a print and cut. However, when I resize it, the original image I traced doesn't change its size.

- Hold the **Shift** key while dragging the corner in the resizing mode. That will change the original graphic, as well as the tracing.

How do I rotate an image I've imported and traced for a print and cut? I want to fit as many as possible on a page.

- At the time of this writing, there is no easy way to rotate an imported/traced graphic image. You have two options:
  - ◊ Make a copy of your original image file and rotate it in another graphics program, such as Paint (part of Windows free programs), Gimp, Photoshop, Elements, etc. Most any program that opens raster graphics should have an option to rotate and save. Then, import the rotated image and pixel trace using the same settings as for the original image.
  - ◊ Make a copy of your imported/traced image and remove the texture (refer to the end of the **Changing Texture** subsection of *Section 3.14*). Then add a new texture using the other instructions in *Section 3.14*. Note that you will need to turn off **Tile Texture**, rotate the image, and then use a trial and error process on the **Left** and **Top** settings to get the graphic positioned perfectly. This is why it's much faster to rotate the image in another program and re-import into MTC.

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